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AMERICAN JOURNAL
OF THE
MEDICAL SCIENCES.

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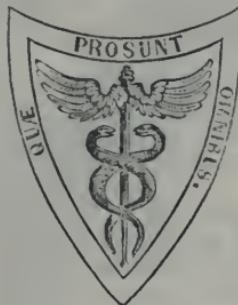
ISAAC HAYS, M.D.,

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TO READERS AND CORRESPONDENTS.

The following works have been received :—

The Elements of Materia Medica and Therapeutics. By JONATHAN PEREIRA, M.D., F.R.S. & L.S. Third American edition, enlarged and improved by the author, including notices of most of the medicinal substances in use in the civilized world, and forming an Encyclopedia of Materia Medica. Edited by JOSEPH CARSON, M.D., Professor of Materia Medica and Pharmacy, in the University of Pennsylvania; Fellow of the Royal College of Physicians of Philadelphia, etc. etc. Vol. II. Philadelphia: Blanchard & Lea, 1854. (From the Publishers.)

The Medical Formulary ; being a collection of prescriptions derived from the writings and practice of many of the most eminent physicians in America and Europe ; to which is added an Appendix, &c. By BENJAMIN ELLIS, M. D., late Professor of Materia Medica and Pharmacy in the Philadelphia College of Pharmacy. Tenth edition, revised and extended. By ROBERT P. THOMAS, M. D., Professor of Materia Medica and Pharmacy in the Philadelphia College of Pharmacy. Philadelphia: Blanchard & Lea, 1853. (From the Publishers.)

A Treatise on the Venereal Disease. By JOHN HUNTER, F.R.S. With copious additions. By Dr. PHILIP RICORD, Physician of the Hôpital du Midi, Paris, etc. Edited, with notes, by FREEMAN J. BUMSTEAD, M. D., etc. Philadelphia: Blanchard & Lea, 1853. (From the Publishers.)

On the Ethiology, Pathology, and Treatment of Fibro-Bronchitis and Rheumatic Pneumonia. By THOMAS H. BUCKLER, M. D., formerly Physician to the Baltimore Almshouse Infirmary. Philadelphia: Blanchard & Lea, 1853.

Prize Essay. On the Use and Abuse of Alcoholic Liquors, in Health and Disease. By WILLIAM B. CARPENTER, M. D., F. R. S., Examiner in Physiology in the University of London, etc. etc. With a preface. By D. F. CONDIE, M. D., Secretary of the College of Physicians of Philadelphia, etc. Philadelphia: Blanchard & Lea, 1853.

Experimental Researches Applied to Physiology and Pathology. By E. BROWN-SEQUARD, M. D., P., &c., &c. New York, 1853. (From the Author.)

Lectures on Surgical Pathology, delivered at the Royal College of Surgeons of England. By JAMES PACET, F. R. S., lately Professor of Anatomy and Surgery to the College, etc. Philadelphia: Lindsay & Blakiston, 1854. (From the Publishers.)

A Text-book of Anatomy and Guide in Dissections, for the use of Students in Medicine and Dental Surgery. By WASHINGTON R. HANDY, M. D., Professor of Anatomy and Physiology in the Baltimore College of Dental Surgery, etc. With two hundred and sixty-four illustrations. Philadelphia: Lindsay & Blakiston, 1854. (From the Publishers.)

Letters on Syphilis. Addressed to the Chief Editor of *L'Union Médicale*. By Ph. RICORD, Chirurgien to the Hôpital du Midi, &c. &c. Translated from the French, with an Analysis of the above letters, extracts from the Clinical Lectures of M. Ricord on the Treatment of Venereal Diseases, and an Appendix, containing all the Formulae of the Venereal Hospital at Paris. By A. D. SLADE, Member of the Massachusetts Medical Society, etc. etc. Boston: Printed by David Clapp, 1853.

Yellow or Malignant Bilious Fever in the vicinity of South Street Wharf, Philadelphia, 1853. (Read before the College of Physicians, August 3, and September 7, 1853.) With an Appendix. By WILSON JEWELL, M.D., etc. Philadelphia, 1853. (From the Author.)

On the Venomous Serpents of Georgia. By JOHN LE CONTE, M. D., Professor of Natural Philosophy and Chemistry in the University of Georgia. (From the Author.)

Prize Essay. The Surgical Treatment of certain Fibrous Tumours of the Uterus, heretofore considered beyond the resources of art. By WASHINGTON L. ATLEE, M. D., of Philadelphia. Extracted from the Transactions of the American Medical Association for the year 1853, for private distribution. Philadelphia, 1853. (From the Author.)

On Coxalgia, or Hip Disease. By ALDEN MARCH, M.D., of Albany, New York. Presented to the American Medical Association, at its Session of May, 1853. Philadelphia, 1853. (From the Author.)

Non-Fatal Accidents from Anaesthetic Agents, with Observations. Read before the Medico-Chirurgical Society of Cincinnati. By W. H. MUSSEY, M. D. Reprinted from the Western Lancet, November, 1853. (From the Author.)

Report of the Standing Committee on Surgery. Read before the Kentucky State Medical Society, October, 1853. By JOSHUA B. FLINT, Professor of Surgery in the Kentucky School of Medicine. Louisville, 1853. (From the Author.)

The Trials and Rewards of the Medical Profession ; an Introductory Lecture delivered at the Opening of the First Session of the Miami Medical College at Cincinnati, October 3, 1852. By R. D. MUSSEY, M. D., Professor of Operative Surgery. Cincinnati, 1853. (From the Author.)

A Lecture introductory to the Course of Lectures in the Medical Institution of Yale College, September 29, 1853. By JONATHAN KNIGHT, M. D., Professor of Surgery. New Haven, 1853. (From the author.)

The Legitimate Goal of Professional Ambition. An Address, introductory to the Course of Lectures in the Medical Department of the St. Louis University. By WM. MCPHEETERS, M. D., Professor of Materia Medica and Therapeutics. Delivered in O'Fallon Hall, October 31, 1853. Published by the Class. St. Louis, Mo., 1853.

Homoeopathy, an Introductory Address to the Students of Starling Medical College, November 2, 1853. By CHARLES A. LEE, M. D. Columbus, 1853. (From the author.)

Introductory Lecture Addressed to the Class of the Kentucky School of Medicine. Session 1853-54. By H. M. BULLIT, M. D., Professor of Physiology and Pathology. Louisville, 1853.

The Claims of Medicine to be regarded as a Science. An Introductory Lecture delivered at the Opening of the Third Session in the Medical Department of the University of Nashville (October 31, 1853). By PAUL F. EVE, M. D., Professor of Surgery. Published by the Class. Nashville, Tenn., 1853.

A Discourse Commemorative of the late William E. Horner, M. D., Professor of Anatomy. Delivered before the Faculty and Students of the University of Pennsylvania, October 10, 1853. By SAMUEL JACKSON, M. D., Professor of the Institutes of Medicine. Published by the Class. Philadelphia, 1853.

Proceedings of the American Pharmaceutical Association at the Annual Meeting, held in Boston, August 24, 25, and 26, 1853. Published by direction of the Association. Philadelphia, 1853.

Constitution and By-Laws of the Boston Society for Medical Improvement ; with a list of Members. Boston, 1853. (From Wm. W. Morland, M. D.)

Transactions of the Thirtieth Annual Meeting of the Medical Society of Virginia. To which is prefixed the President's Address. Richmond, Va., 1853.

Transactions of the New York Academy of Medicine, Vol. i. Part II. Containing Hospital Hygiene, Illustrated. By JOHN H. GRISCOM, M. D. New York, 1853.

Twenty-third Annual Report of the Belfast District Hospital for the Insane, 1853. Belfast, 1853. (From Robert Stewart, M. D.)

Seventeenth Annual Report of the Trustees and Superintendent of the Vermont Asylum for the Insane, August, 1853. Brattleboro', 1853.

Annual Circular of the Medical Institution of Yale College for the Lecture term of 1853-54.

The following Journals have been received in exchange:—

- Annales Médico-Psychologiques.* Par MM. les Docteurs BAILLARGER BRIERRE, DE BOISMONT, et CERISE. July, 1853.
- Gazette Médicale de Paris.* July, August, September, October, 1853.
- Revue de Thérapeutique Médico-Chirurgicale.* Par A. MARTIN-LAUZER, M. D., P. July, August, September, October, 1853.
- Le Moniteur des Hôpitaux.* Redacteur en chef M. H. DE CASTELNAU, D. M. P. July, August, September, October, November, 1853.
- Archives d'Ophthalmologie* comprenant les travaux le plus important sur l'Anatomie, la Physiologie, la Pathologie, l'Hygiène, et la Therapeutique de l'Appareil de la Vision. Par M. A. JAMAIN, Docteur en Medecine de la Faculte de Paris. July, August, September, October, 1853.
- The British and Foreign Medico-Chirurgical Review.* October, 1853.
- The Journal of Psychological Medicine and Mental Pathology.* Edited by FORDES WINSLOW, M. D., D. C. L. October, 1853.
- The Dublin Quarterly Journal of Medical Science.* August, November, 1853.
- Dublin Medical Press.* September, October, November, December, 1853.
- Medical Times and Gazette.* October, November, December, 1853.
- Monthly Journal of Medical Science.* Edited by WM. ROBERTSON, M. D. October, November, 1853.
- Association Medical Journal.* Edited by JOHN ROSE CORMACK, M. D. October, November, 1853.
- The Medical Chronicle, or Montreal Journal of Medicine and Surgery.* Edited by W. WRIGHT, M. D., and B. S. MACCALLUM, M. D. October, November, December, 1853.
- The Upper Canada Journal of the Medical, Surgical, and Physical Sciences.* Edited by S. J. STRATFORD, M. R. C. S. October, 1853.
- The Virginia Medical and Surgical Journal.* Edited by G. A. OTIS, M. D., and H. L. THOMAS, M. D. October, November, December, 1853.
- The New York Journal of Medicine and the Collateral Sciences.* Edited by SAMUEL S. PURPLE, M. D., and STEPHEN SMITH, M. D. November, 1853.
- New York Medical Times.* Edited by H. D. BULKLEY, M. D. November, December, 1853.
- The Northwestern Medical and Surgical Journal.* Edited by W. B. HERICK, M. D., and H. A. JOHNSON, M. D. September, October, November, 1853.
- The American Journal of Science and Arts.* Conducted by Professors B. SILLIMAN, B. SILLIMAN, JR., and J. D. DANA, in connection with Professors GRAY and AGASSIZ, and Drs. BURNELL and GIBBS. November, 1853.
- Memphis Medical Recorder.* Edited by A. P. MERRILL, M. D. and CHARLES QUINTARD, M. D. November, 1853.
- Iowa Medical Journal.* Conducted by the Faculty of the Medical Department of Iowa University. October, November, December, 1853.
- The Boston Medical and Surgical Journal.* Edited by J. V. C. SMITH, M. D. October, November, December, 1853.
- New Orleans Medical and Surgical Journal.* Edited by A. HESTER, M. D. November, 1853.
- Western Lancet.* Edited by S. M. LAWSON, M. D. and T. WOOD, M. D. October, November, 1853.
- St. Louis Medical and Surgical Journal.* November, 1853.
- The Peninsular Journal of Medicine and the Collateral Sciences.* Edited by E. ANDREWS, A. M., M. D., etc. August, September, October, November, December, 1853.
- The New Hampshire Journal of Medicine.* Edited by E. H. PARKER, M. D. and G. H. HUBBARD, M. D. October, 1853.
- The Ohio Medical and Surgical Journal.* Edited by R. L. HOWARD, M. D. November, 1853.
- The Charleston Medical Journal and Review.* Edited by D. J. CAIN, M. D., and F. PEYRE PORCHER, M. D. November, 1853.

- The Medical Examiner. Edited by F. G. SMITH, M. D., and J. B. BIDDLE, M. D. October, November, December, 1853.
- Kentucky Medical Recorder. Edited by H. M. BULLITT, M. D., and R. J. BRECKENBRIDGE, M. D. September, October, November, December, 1853.
- Southern Medical and Surgical Journal. Edited by L. A. DUGAS, M. D. October, November, December, 1853.
- The New York Medical Gazette. Edited by D. M. REESE, M. D. October, November, December, 1853.
- Southern Journal of the Medical and Physical Sciences. September, November, 1853.
- The American Journal of Dental Science. Edited by Drs. C. A. HARRIS, A. A. BLANDY, and A. S. PICCOT. October, 1853.
- The New Jersey Medical Reporter. Edited by JOSEPH PARRISH, M. D. September, November, 1853.
- The Buffalo Medical Journal and Monthly Review. Edited by AUSTIN FLINT, M. D., and S. B. HUNT, M. D. October, November, December, 1853.
- The American Journal of Insanity. Published by the New York State Lunatic Asylum, Utica, N. Y. October, 1853.
- The Western Journal of Medicine and Surgery. Edited by LUNSFORD P. YANDELL, M. D., and THEODORE S. BELL, M. D. October, 1853.
- The Stethoscope, and Virginia Medical Gazette. Edited by P. C. GOOCH, M. D. October, November, 1853.
- New York Journal of Pharmacy. Edited by B. W. McCREADY, M. D., &c. October, November, December, 1853.
- The Medical Reporter. A Quarterly Journal. Published under the direction of the Chester and Delaware County Medical Societies. October, 1853.
- The American Journal of Pharmacy. Edited by WM. PROCTOR, Professor of Pharmacy in the Philadelphia College of Pharmacy. November, 1853.

Communications intended for publication, and Books for Review, should be sent, *free of expense*, directed to ISAAC HAYS, M. D., Editor of the American Journal of the Medical Sciences, care of Messrs. Blanchard & Lea, Philadelphia. Parcels directed as above, and (carriage paid) under cover, to John Miller, Henrietta Street, Covent Garden, London; or to John Wiley or G. P. Putnam, New York; or W. D. Ticknor, Boston; or M. Hector Bossange, Lib. quai Voltaire, No. 11, Paris, will reach us safely and without delay. We particularly request the attention of our foreign correspondents to the above, as we are often subjected to unnecessary expense for postage and carriage.

All remittances of money, and letters on the *business* of the Journal, should be addressed *exclusively* to the publishers, Messrs. Blanchard & Lea.

 The advertisement-sheet belongs to the business department of the Journal, and all communications for it should be made to the publishers.

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XI. A Treatise on the Diseases of the Eye. By W. Lawrence, F. R. S., Surgeon Extraordinary to the Queen; Surgeon to St. Bartholomew's Hospital, and Lecturer on Surgery at that Hospital; Surgeon to Bethlem and Bridewell Hospitals; and late Surgeon to the London Ophthalmic Infirmary. A New Edition. Edited, with numerous Additions, and two hundred and forty-three Illustrations, by Isaac Hays, M. D., Surgeon to Wills Hospital; Fellow of the Philadelphia College of Physicians; Member of the American Medical Association; of the American Philosophical Society; of the Academy of Natural Sciences of Philadelphia, etc. etc. Philadelphia: Blanchard & Lea, 1854. 1 vol. octavo, pp. 948. -	177	
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XVII. Lectures on Surgical Pathology, delivered at the Royal College of Surgeons of England. By James Paget, F. R. S., lately Professor of Anatomy and Surgery to the College; Assistant Surgeon and Lecturer on Physiology at St. Bartholomew's Hospital. London, 1853. 2 vols. 8vo. 197		
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XIX. The Elements of Materia Medica and Therapeutics. By Jonathan Pereira, M. D., F. R. S., and L. S. Third American edition, enlarged and improved by the Author; including notices of most of the medicinal substances in use in the civilized world, and forming an Encyclopædia of Materia Medica. Edited by Joseph Carson, M. D., Professor of Materia Medica in the University of Pennsylvania; Fellow of the College of Physicians of Philadelphia, etc. Philadelphia: Blanchard & Lea, 1852 and 1854. Vol. I. pp. 838, Vol. II. pp. 1,226. -	198	

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ART. I.—*Observations on the Black Vomit; its Nature and Composition, and its Value in the Diagnosis and Prognosis of the Yellow Fever.* By R. LA ROCHE, M. D., of Philadelphia.

EVERY practical physician or medical reader, who has made himself familiar with the diagnostic characters of the yellow fever, knows that, in a large number of cases, to a period of arterial excitement, of greater or shorter duration—usually from 48 to 72 hours—and constituting, as it were, a single paroxysm, there succeeds one of repose or remission, during which the patient, and not unfrequently his medical attendant, flatter themselves with the expectation that the danger is over and a complete recovery at hand. But although, in the milder forms of the disease, these expectations are often realized and convalescence soon sets in, experience teaches that, in very many instances, this period of repose, well-marked as it may be, proves treacherous, and is followed, not by a recurrence of febrile excitement, as occurs in other forms of autumnal fevers, but by a state of collapse, attended with a series of symptoms of a more or less formidable character, which lead usually to a fatal termination. Among these symptoms, the seriousness of which will not be contested, the ejection from the stomach of a peculiar matter, which, from its ordinary colour and appearance, has been long designated by the name of the black or coffee-ground vomit, stands pre-eminent. By not a few medical writers in this and other countries, it has been regarded as among the most distinctive features of the yellow fever. Indeed, there are not wanting those who view it in the light of the pathognomonic phenomenon *par excellence*—that which enables us to distinguish this from every other form of febrile disease—and who, though not going so far as to assert that none but cases attended with black vomit are to be regarded as entitled to the name of yellow fever, or uniting in sentiment with the advocates of the theory that, so long

as this matter is not ejected, it is impossible to diagnose that fever, think that the occurrence of the symptom is of itself sufficient to remove all difficulty as to the nature of the disease, while, on the contrary, its absence is equally sufficient to throw great doubts in reference to that question. Sir William Pym, in a letter to Mr. Vance, speaking of this black matter, calls it the most fatal "as well as the most distinctly marked symptom of the disease," and which, when united with a speedy termination, leaves no doubt as to the real nature of the case.¹ More recently, in a letter to Mr. Greville, of the Admiralty, on the subject of the fever which spread so fatally on board of the *Æclair*, Sir William speaks of the symptom in question as peculiar to the disease, and not encountered in kindred affections;² and in another letter, addressed to the Lords of the Council, on the fever of Boa Vista, he says: "This disease is unknown in the East Indies, in Egypt, or in Turkey, and is a native of and peculiar to the west coast of Africa; it is attended with the peculiar and fatal symptom of black vomit, a symptom which rarely, if ever, appears in the marsh or remittent fever."³ It would be easy to show that other writers, of more or less note, have entertained opinions similar to those of Sir William Pym, relative to the importance of the black vomit in a diagnostic point of view,⁴ and to its being exclusively an attendant on the yellow fever; and it is scarcely necessary to remark that the name of *vomito prieto*, given to the disease by the Spaniards, sufficiently indicates that, according to them, the symptom belongs to no other form of fevers, and serves to impart to the one in which it shows itself a peculiar and specific character—to stamp it as it were with individuality.

But whatever may be the opinion of Sir William Pym and others on the subject, experience has shown the impropriety of carrying it to the extent they have done. When considered by itself, without reference to other phenomena by which it is preceded and accompanied, and especially when noticed only in a single or a few sporadic instances, the black vomit is not sufficient to stamp the disease in which it occurs as being the true yellow fever; while, on the other hand, its occurrence in this disease is not sufficiently constant and necessary to justify us in refusing to recognize as such, cases which present its other symptoms, merely on the ground that black matter has not been ejected from the stomach.

In support of the first of these propositions, attention may be called to the fact that the dark coffee-ground substance in question is not unfrequently the effect of other causes than the peculiar poison giving rise to the yellow fever, and that it occurs at times not only in diseases more or less remotely connected with the latter, but occasionally in cases in no way allied to it. In the description of the Black Disease, contained in a treatise ascribed to Hippocrates, the matter thrown up is spoken of as being black-bile, or as resembling lees of wine;

¹ On Bulam Fever, p. 60. Ib. 2d ed. p. 37.

² See the 2d ed. p. 189.

³ Parliamentary Doc. p. 5.

⁴ Shecut, p. 120.

at other times, as a matter resembling blood. "Sometimes the matter vomited resembles the second wine; sometimes it is like the ink of the cuttle-fish; sometimes it is acid, like vinegar; sometimes it consists of saliva and thin phlegm; sometimes of greenish bile. When the black blood-like matter is vomited, it smells like putrid or sanguous blood. The fauces and mouth are scalped by the acrimony of the vomit; it sets the teeth on edge, and effervesces with the earth on which it falls; when the vomiting is over, temporary relief ensues." We shall see, as we proceed, that much of what is here said by the father of medicine will apply very accurately to the true black vomit of yellow fever.

In common melæna, the general symptoms of which do not correspond to those of yellow fever, blood in various gradations of change, from a red fluid to a dark matter resembling the grounds of coffee, has been sometimes ejected from the stomach.¹ In the description of the variety of the disease which was denominated melanosis by the older writers, we are told that "the patient is suddenly seized with vomiting of dark-coloured blood, together with a discharge, by stool, of blood of the same appearance, or more frequently of a very dark and often extremely fetid semifluid mass, of the consistence and colour of tar. Occasionally, the black matter discharged is mixed with blood of more unequivocal appearance."²

Black vomit has not unfrequently resulted from the action of various poisons. That such is the case in regard to arsenic, we have the testimony of Sauvage,³ of Dr. Edward Miller,⁴ Dr. Waring,⁵ and Dr. Shecut.⁶ Poisoning by corrosive sublimate and verdigris has been known to result in the ejection of a similar matter from the stomach.⁷ Dr. Monges mentions an interesting case in which similar effects followed the ingestion of a large dose of carbonate of potash.⁸ I have known a very analogous effect produced by a quantity of borate of soda, swallowed by mistake, the patient becoming jaundiced and throwing up more than a pint of black matter, bearing a close resemblance to that ejected in the last stage of yellow fever, to say nothing of pain, fever, praecordial distress, &c. Vegetable poisons of various kinds are reported by good authorities to have occasioned like effects.⁹ We know

¹ Bancroft, p. 31.

² Carswell, Cyclop. of Pract. Med. iii. p. 80, &c. Portal, Mémoires sur Plusieurs Maladies, ii. p. 129. Trans. of Irish College of Phys. i. p. 124. Dublin Hosp. Rep. i. p. 259.

³ Sauvage, Nosologie Méthodique, iii. p. 112.

⁴ Works, pp. 152, 153. New York Med. Repos. ii. p. 412.

⁵ Report on Yellow Fever of Savannah in 1820, pp. 37, 38. ⁶ Essays, p. 113.

⁷ Miller, *op. cit.* pp. 51, 57; Chaussier, Consult. de Med. Leg. p. 40; Caillot, Fièvre jaune, p. 84; Percival's Essays, ii. p. 122.

⁸ North American Med. and Surg. Journ. ii. p. 60.

⁹ Hunter, Dis. of Jam. p. 156; Wepper, Hist. Cieutæ; Miller, *op. cit.* p. 153; Dewitt on Stramonium, Med. Repos. ii. p. 30; Sauvage's Nosol. iii. p. 444; Rochoux, pp. 79, 80; Salva, p. 172, quoted by Rochoux.

also, from olden times, that animal poisons, those of the viper, scorpion, &c., produce occasionally effects of the kind noted above.¹ It was long ago found, and has recently been insisted upon by Dr. Mitchell, of this city, that fungi of various kinds possess the power of producing phenomena somewhat akin to those characteristic of malarial fevers generally, but more particularly to those of the yellow fever; and among them figures the black vomit.² The same symptom has been known to arise from mechanical injuries to the stomach. Dr. Monges mentions a case in which it was produced by the kick of a horse.³

The ejection of a similar fluid from the stomach or bowels is often found to follow the introduction of putrid substances into the circulation. Levacher states, as the result of his experiments on dogs, in whom, by the way, the act of vomiting is not easily excited, that the discharge of bilious and poracious matter from the stomach was soon succeeded by that of blood, and of a fluid which he likens to that thrown up in the yellow fever. Then follow dysenteric and black stools.⁴ It should be borne in mind that Levacher, who cites these facts as illustrative of the close analogy existing between the yellow fever and diseases produced by putrid and poisonous substances, was perfectly familiar with that fever, and as able as any physician to decide the question of similarity between the fluids vomited in both cases.

Hear what Magendie says on the subject: "No sooner have a few particles of putrid matter passed into the circulation, than the animal is attacked with formidable symptoms. He throws up by vomiting a blackish and grumous (*pisseux*) liquid. This," Magendie adds, "is nothing more than blood exhaled from the inner surface of the stomach, the mucous membrane of which, throughout its whole extent, is puffed up by deposits of blood effused beneath it and in the cellular tissue."⁵

The second and third volumes of Magendie's *Journal of Physiology* contain accounts of experiments by M. Gaspard, confirming the foregoing statements. The facts resulting from these experiments evidently point, as is remarked by Magendie, to the cause of the black vomits, which take place in yellow fever, certain typhus cases, &c. A much higher authority than the French physiologist, so far as respects the black vomit of the former of those diseases—the late Dr. Harrison, of New Orleans—remarks, in relation to the results of the aforesaid experiments: "No one, I think, can fail to be struck with the extraordinary resemblance of these symptoms, and *post-mortem* lesions to those of yellow fever. The characteristics of the

¹ Sauvages, iii. pp. 112, 115, 448; Ferguson, Recol. 204, 205; Caillot, *op. cit.* 296; Bally, *Typhus d'Amérique*, p. 552; Levacher, *Guide des Europeans aux Antilles*, p. 78; Hunter, p. 156.

² Sauvages, iii. p. 115; Mitchell on the Cryptogamie Origin of Fevers, p. 73.

³ *Op. cit.* p. 60.

⁴ *Op. cit.* p. 80.

⁵ *Phénomènes Physiques de la Vie*, iii. p. 223.

disease, its rapid course, its hemorrhagic tendency, its peculiar lesions, are all to be met with in these experiments. We have *black vomit*, bloody alvine discharges, &c., all so characteristic of yellow fever."¹

Dr. Evans relates the case of a woman who died of metro-peritonitis, occurring in the puerperal state, arising apparently from the putrefaction of the retained placenta. The abdomen was *ballonné*, and exceedingly painful to the touch. There were fetid discharges from the vagina, with great heat and pain. The pulse was scarcely perceptible, and the extremities were cold. "But the most remarkable symptom was the almost incessant vomiting, without effort, of immense quantities of a dark chocolate-looking matter, filling several chamber-pots." On dissection, the stomach was found to contain "a quantity of black matter, similar to that vomited, probably the greater part of a pint." "In this case," says Dr. Evans, "was observed that symptom which, according to many, constitutes one of the diagnostic peculiarities of yellow fever." And as that physician was perfectly familiar with the characteristic appearance of the black vomit, as observed in the latter disease, we may presume there can be no doubt as to the nature of the fluid ejected in the case above mentioned. Dr. Evans again adverts to this case, while treating of black vomit, in a subsequent part of his work.² M. Levacher refers to instances of the same kind arising from analogous causes (p. 80).

The discharge of a similar fluid from the stomach or bowels, or its discovery in these organs on dissection, is not unfrequently noted in fatal cases of some forms of puerperal fever. It is often mentioned by the older writers on the disease, and alluded to more or less explicitly in works of modern date. That much of what is therein said of the ejection of black matter does not apply to a substance in every way similar to the coffee-ground vomit of yellow fever, I shall not attempt to deny; for the characteristic features of the fluid observed are not always described with sufficient minuteness and precision to enable us to form an accurate idea of its true nature. In addition to this, it may be remarked, that the matter thrown up in puerperal fever is usually stated to have consisted of altered bile; and though we know, from what has occurred in relation to the yellow fever, that little reliance can be placed on assertions of the kind; the fact that bilious discharges may and do sometimes take place in puerperal fever, must induce us to refrain from adducing the statements of several writers who mention the symptom in proof of the occasional discharge of true black vomit in this disease.³ Dr. Gordon is more explicit on the subject: "A vomiting of bile of a green colour was a symptom which frequently occurred, especially when the patient was costive; and when there

¹ On the Causes of Yellow Fever. N. O. Journ. iii. p. 570.

² A Clinical Treatise on the Endemic Fevers of the West Indies, pp. 247-8.

³ Hulme, Essays on Puerperal Fever, published by the Sydenham Soc. pp. 66, 97; Leake, pp. 184, 189, 194, 195; Clarke, 424. See also Robert Lee, Cyclop. of Pract. Med. ii. p. 252.

were symptoms of mortification, what the patient vomited was black, and had a strong resemblance to the grounds of coffee."¹ "Frequent vomiting of a coffee-coloured fluid" is mentioned by Dr. Armstrong, who justly considers it as a highly dangerous symptom.² Black vomit in puerperal fever is farther mentioned by the late Dr. Monges, of this city,³ Dr. Dickson, of Charleston,⁴ and Dr. Dickinson.⁵ Dr. Dewees says: "We have seen more than one instance of puerperal fever terminating in black vomiting, similar to that observed in yellow fever."⁶

The following extract from a letter addressed to me by Dr. C. D. Meigs, of this city, whose extensive experience in this disease is well known, deserves attention: "In compliance with your request, I have to state that, during my very long and continued practice as accoucheur in Philadelphia, I have had many occasions to observe the changes that precede dissolution in childbed fever. I think that fatal cases of that disease will rarely fail to be attended with black vomit, beginning in the last stages. In the course of my practice, I have also seen fatal yellow fever attended with black vomit. I have also observed that persons perishing with acute peritonitis, often, in approaching the final stages of existence, are attacked with black vomit. I am fully convinced that in the black vomit of childbed fever, of yellow fever, and of acute peritonitis, in males or females, no difference whatever can be detected; and that the ejection of that fluid is not, therefore, peculiar to yellow fever."

Dr. Dewees states that he has also seen the same appearance after rupture of the uterus.⁷ And in another work he remarks: "She (the patient) is sick at stomach, and most frequently vomits; the matter discharged is sometimes the common contents of the stomach, at other times it consists of a very dark, even black-coloured substance, resembling coffee-grounds."⁸ Another writer already quoted, Dr. Dickson, of Charleston, is of opinion that black vomit always follows the occurrence just mentioned.⁹ The same gentleman adds: "Dr. P. G. Prioleau, whose professional experience has seldom been equalled, and whose authority upon any point of fact is undisputable, assured me he had repeatedly known it (black vomit) to take place among the early vomiting of pregnant women without unpleasant results."¹⁰ In another publication, Dr. D. relates the following case: "On the 17th of November, 1825, I was desired to visit, in haste, Mrs. J. F., a lady in the eighth month of pregnancy. I found her sitting supported in bed, throwing up the black vomit.

¹ Essay on the Puerperal Fever, p. 10; Essays of Sydenham Society, p. 450.

² Observations on Puerperal Fever, p. 131.

³ *Op. cit.* p. 60.

⁴ Essays, p. 355.

⁵ Observations on the Inflammatory Endem. p. 51.

⁶ Diseases of Females, p. 378, note.

⁷ *Ibid.* p. 378.

⁸ System of Midwifery, p. 464.

⁹ Essays, p. 355; Phila. Med. and Phys. Journ. xiv. p. 208.

¹⁰ *Ibid.* p. 355.

There were violent headache, severe pain in the eyes, which were intolerant of light, no pain at the epigastrium. A slight purgative was ordered, and she was next day as well as ever.”¹ Dr. Nott, of Mobile, recalls the fact that, when fever occurs to women in the state of pregnancy, and there is much and protracted vomiting, small specks or streaks of black matter, like broken up butterfly wings, are thrown up, very similar to those which form the usual precursors of black vomit in yellow fever.” Dr. Crawford related to him the following case: “The patient, during the month of December last (1844), ill of protracted fever, possessing no other symptom of yellow fever, and at a time and place where this disease was not prevailing, threw up black matter profusely, which could not be distinguished from the black vomit of yellow fever.”²

Dr. Dickson has met with the black vomit in several cases of bilious remittent fever. In 1825, he saw two patients die of that disease upon the Charleston Neck, who ejected that fluid by the stomach and bowels. In each, the symptoms appeared on the fourth day. They lived at some distance from the city on low, wet ground, and were particularly exposed to the ordinary causes of autumnal remittents and intermittents. Dr. D. saw cases of the kind in 1827.³ The black vomit has been noticed in malignant cases of our lake fevers.⁴ Dr. Hildreth, in his account of the fever which prevailed at Marietta, Ohio, in 1823, enumerates the black vomit among the symptoms of the most severe cases.⁵ The same symptom has been observed in the remittent fever of other parts of this country.⁶ Dr. Fennier, of New Orleans, mentions two cases of the sort as occurring in 1850. The first was that of a boy 8 years old, who arrived there in 1847, and suffered from the epidemic of that year. He afterwards enjoyed good health until about the 15th of July, 1850, when he was severely attacked with dysentery. He was never suspected of having the yellow fever; but, on the night of the 19th of July, he threw up black vomit freely, and died. There was no yellowness of the surface nor of the eyes. The other case was a dissipated Irishman, who had been several years in New Orleans. He was admitted into the Charity Hospital on the 11th of September labouring under the prevailing remittent bilious fever, with great irritability of stomach and copious bilious vomiting. On the day following, the ejecta became darker, with flocculi resembling the beginning of black vomit. There was also hemorrhage of the gums. “The bile now disappeared, and the dark colour increased until the ejecta presented very good specimens of black vomit. The next appearance was a copious vomiting of pure blood, which lasted at least two days and nights. It then began to diminish, and

¹ Ibid. p. 207.

² Amer. Journ. Med. Sci. N. S. ix. p. 283.

³ Essays, 355, Phil. Med. and Surg. Journ. xiv. p. 208; American Journ. ii. p. 73.

⁴ Coventry, Trans. of Med. Soc. of State of New York for 1825, p. 46. See also Second Report of Quarantine. Lond. 1852, p. 377.

⁵ Phil. Med. and Phys. Journ. iii. p. 110.

⁶ Cooke, Med. Recorder, vii. p. 507.

then to present the appearance of black vomit. This gradually became lighter, and finally gave place to greenish-yellow bile again, which continued till the day of his death on the evening of the 24th. On the last day, the dark flocculi again appeared in the ejecta. There was no jaundice, no injection of the conjunctiva, no watery eyes, no flushed countenance. Nor did the body turn yellow after death. The stomach contained not black vomit, but yellow bilious matter. There were ecchymosed patches—the evident sources of the black fluid. The liver presented a natural appearance, and the gall-bladder contained bile. In a word, none of the phenomena observed during life and of the appearances discovered after death are calculated to lead to the suspicion that the patient was affected with the yellow fever."¹

Cleghorn saw the black vomit in the tertian fever of Minorca, the symptoms of which, even in its worst form, bear but a remote analogy to those of the yellow fever. In that disease, he found that "the utmost danger is to be apprehended if black matter like the grounds of coffee is discharged upwards and downwards."² In several cases of Mediterranean fever, detailed by Sir William Burnett, and some reported to him by Dr. Ross, the black vomiting took place.³ Though not seen by Dr. McWilliams,⁴ nor by Dr. Pritchett,⁵ in the fever they observed during the Niger Expedition, there are not wanting facts to show that it is not always absent in the closing scene of the African remittent. Sure it is that black vomit occurs occasionally in certain malignant or pernicious forms of the fever from which the French troops have so severely suffered in Algeria.⁶ Pugnet mentions vomiting of black matter as a fatal symptom in the Demel-Mouia, a form of pernicious fever observed in Egypt.⁷ The Batavian fever, even that of the Island of Edam, for a graphic description of which we are indebted to Dr. J. Johnson, differs in too many respects from the true yellow fever to be confounded with it. It partakes much more of the character of the malignant bilious remittents of many tropical regions. Some of the patients on shore were carried off in eighteen, twenty-four, thirty, or forty hours, but many not till as many days after the attack, especially when removed on board from the more noxious air of the island. "The fatal terminations generally happened on the third, fifth, seventh, ninth, and not unfrequently the eleventh and thirteenth day; if they passed this period, they usually lingered out twenty or thirty days." This prolongation of the disease is sufficient—apart from other phenomena noticed in its course—to establish a line of demarcation between it and typhus icterodes; and yet in a few—not a majority, as in the latter fever—of the cases that ended fatally, the patients

¹ Southern Med. Reports, vol. ii. pp. 89, 90.

² Dis. of Minorca, 175.

³ Account of the Mediterranean Fever, pp. 50, 157, 421.

⁴ Med. Hist. of the Expedition to the Niger, p. 138.

⁵ Some Account of the African Remittent Fever, p. 162.

⁶ Haspel, *Maladies de l'Algéric*, ii. pp. 167-8. Boudin, *Fièvres Intermittentes*, p. 155.

⁷ *Fièvres Pestilentielles*, p. 234.

threw up a fluid resembling the black vomit. Dr. Johnson, it is true, denominates the fluid "black bilious stuff," but as he adds that it resembled "the grounds of coffee," and it is doubtful whether bile assumes that character, and as, besides, we cannot find that Dr. J. regarded the discharge which takes place in the yellow fever as being other than of a bilious nature, we may justly view the fluid above mentioned as similar to that thrown up in the last-mentioned complaint.¹ Trousseau mentions somewhere a case of pernicious fever in which the black vomit was "perfectly identical" with that which is thrown up by patients labouring under yellow fever. Lancisi records the appearance of brown and black vomit and stools in an epidemic at Pesaro, in 1708. Garniere saw it in the fever hospitals at Rome and even at Versailles.² In the West Indies, it may, as Dr. Imray informs us, be of rare occurrence in the bilious remittent and seasoning fevers; but that it occasionally occurs, we may infer from the expression he himself uses and the more positive asseveration of other writers.³ In enumerating the symptoms of the typhus fever he noticed in Dublin, Dr. Stoker mentions *black vomiting*, melænous feces, and dusky yellow skin, and adds: "The connection which generally subsists between all those symptoms is evinced by their frequent alternation. Thus, the green and black vomiting often alternate, with melænous and alvine discharges, and both of these in other cases with petechiæ, and dusky yellow colour of the surface of the body, and also with similarly coloured suffusion of the eyes."⁴ In the relapsing fever of Scotland and Ireland, it was occasionally, and during the epidemic of Dundee quite frequently, observed.⁵

The following remarks, in reference to this singular fever, would almost seem to have been intended for yellow fever: "Associated with the yellowness, there are generally depression, less or more delirium, dusky and often porter-coloured urine, black mæla-like stools, and hemorrhages from some of the mucous membranes. In the worst of the cases, black coffee-ground-like matter is ejected from the stomach, and passed per anum. In some cases, the black vomit occurs without the yellowness; and, on the other hand, at the autopsy of yellow patients who have had no black vomit, this matter has been found in the stomach and other parts of the alimentary canal."⁶ And yet, as Dr. Craigie very justly observes (*loc. cit.*), "notwithstanding black vomit and jaundice, it is scarcely possible, with any consistency in nosology and common observation, to admit even the resemblance between this fever and yellow fever."

¹ The Influence of Tropical Climates, &c. pp. 130-2.

² See Second Report on Quarantine. Lond. 1852, p. 277. Bulletin of Ac. of Med. vol. xv. p. 1065.

³ Copland, iii. pp. 144, 1144; Dickinson, p. 133; Second Report on Quarantine, 323.

⁴ Pathological Observations, part ii. p. 103.

⁵ Craigie, Edinburgh Journ. ix. p. 416; Smith, Edinburgh Journ. lxii. 67; and Russell, Dublin Journ. viii. 70.

⁶ Cormack, Natural History, Pathology, and Treatment of the Epidemic Fever at present prevailing in Edinburgh, p. 23, 1843.

In the summer of 1822, after a long continuance of unusually hot weather, there occurred in the Hôtel Dieu, of Paris, several cases of fever accompanied with jaundice and black vomit. Two patients were, at the same time, similarly affected at La Charité, in the wards of M. Lerminier, and several instances of what was denominated sporadic yellow fever were seen in Paris. In reference to the patients admitted in the latter hospital, Andral informs us that they had delirium, a black tongue, tympanitic bowels, a jaundiced discolouration of the surface, and exhibited evident signs of an ataxo-adynamic state of the system. They both threw up a quantity of a substance bearing a strong resemblance to soot—an appearance which, as we shall see, is often assumed by black vomit. It may be doubted, however, that those cases were anything more than typhoid fever modified by the extreme heat of the season. One of the patients recovered under the use of the most powerful stimuli. The other died, and the autopsy revealed a gastro-enteritis, with red softening of the mucous membrane, and ulceration of the intestines, an anatomical character which does not belong to yellow fever.¹

The fever which occurred in Copenhagen, in 1788 and 1789, and caused considerable mortality, was characterized by black vomiting. For this reason, and owing to its being attended with yellowness of the eyes and skin, the disease was, and continues by some to be, regarded as the true yellow fever. But considering that it is stated to have raged for some years before among the sailors of the Danish fleet, which seldom sails to tropical climates—that it did not assume its malignant character before the end of October, 1788, when that fleet was united to the Russian vessels of war, and during the prevalence of cold wet weather and easterly winds—that it prevailed in the winter—that three hundred patients who were admitted into the Naval Hospital infected many of the attendants, who again propagated the disease to the rest of the town, but especially to the people belonging to the navy—that, indeed, it was contagious—that during the three days after the arrival of the patients on shore not fewer than six surgeons and sixteen female nurses were attacked by it—that it presented symptoms very seldom if ever noticed in yellow fever, such as gangrene of the feet, hands, face, throat, ears, back—and that it was most successfully treated by emetics, opium, and wine—remedies of doubtful efficacy in yellow fever—we may reasonably demur to the opinion in question, and suspect that, notwithstanding the occurrence of black vomit and jaundice, the disease must be regarded as a modification of ship or typhus fever.²

Dr. Cormack states that a case of typhus came under his observation in one of Dr. Alison's fever wards (Edinburgh), in which the patient, on the seventh day of the fever, after a well-marked remission of the symptoms (which had been severe), was suddenly seized with jaundice and black vomit. The weak-

¹ Dict. de Méd. 1st edit. vol. xxi. p. 17, article Typhus.

² Otto, Med. Top. of Copenhagen; Trans. of the Provincial Med. and Surg. Association, vol. vii. p. 192. Lond.

ther was, during the whole of the case, below the freezing point.¹ Instances of typhus fever also occurred in Dublin during the epidemic of 1827, as we learn from Drs. Stokes² and Graves,³ which, from the circumstances of their being accompanied with yellowness of skin and occasionally with the ejection of black matter from the stomach, were denominated yellow fever. In the description of the symptoms, as given by Dr. S., we find that most of the patients vomited, and, in two cases, a matter resembling coffee-grounds was discharged from the stomach and bowels. In one case, Dr. Graves found a "considerable quantity of a dark-red fluid in the stomach, with a good deal of a substance resembling coffee-grounds." After what precedes, and considering, too, that these cases occurred during the cold weather of the winter months, when true yellow fever never shows itself, and that the summers of Dublin—supposing cases like those mentioned to have sometimes occurred in that season—are not sufficiently long and oppressively hot to produce that disease, and that the symptoms observed in Dublin are not analogous, this black vomit and jaundice excepted, to those of the fever of this country or tropical climates, we may admit the identity of the fluid thrown up on those occasions, or discovered on dissection, with the true black vomit, without being obliged to admit also the identity of the two fevers, and to coincide with Dr. Graves when he states that "there is not so much difference between the diseases of Ireland and warmer countries as has been imagined;" and that "they differ, it is true, as to their degrees, but not as to their pathology."

The black vomit has also been found to occur in the oriental plague.⁴ Dr. Parry, of Bath, describes a case of local organic disease of the stomach, attended with vomiting of matter very much like black vomit of yellow fever.⁵ Dr. Dickinson informs us that he has seen "the discharges from the stomach inky, fuliginous, grumous, like coffee-grounds, or containing dark membranous-like shreds, in gastric affections of a purely topical character."⁶ Dr. Dickson, of Charleston, has also found it to occur in gastritis and enteritis.⁷ He has seen it likewise in a case of catarrhal-fever, in a child three and a half years old, as also in one of varioloid occurring in winter. It ceased on the appearance of the eruption, and the patient recovered. The same physician saw it in two cases of dropsy. Dr. Prioleau, already mentioned, detailed to Dr. Dickson a singular instance of the occurrence of this peculiar discharge in a healthy boy, without any previous or evident bad symptom, and occasioned by no evident cause beyond mere *fatigue*, the youth having run about

¹ *Op. cit.* pp. 90, 91.

² Cyclop. of Pract. Med. article Enteritis, ii. p. 59.

³ Clinical Med. 8vo. 1843, p. 215, Am. edit. pp. 186, 192.

⁴ Clot Bey, 30, 1, 6, 56; Caldwell, p. 19; Pugnet, p. 158; Lacheze, Bulletin de l'Acad. de Méd. i. p. 351.

⁵ Medical Notes, ii. p. 327.

⁶ *Op. cit.* p. 51.

⁷ Essays, 355; Phila. Med. and Phys. Journ. xiv. p. 207.

and played much on a summer day. He slept after vomiting, and awoke quite well.¹

The same discharge has occasionally presented itself in "apoplexy from a stroke of the sun, in injury of the brain, from external violence, and in inordinate intoxication."² It occurred in this city, a few weeks ago, a short time before death in a child nine months old (a mile from the infected district), affected with cerebral irritation consequent on common summer bowel affection. Dr. R. Armstrong saw it in a case of psoas abscess, sent to the Hospital of Jamaica, in the last stage of hectic fever. The patient died on the seventh day after admission, from mere exhaustion, and the stomach was filled with black vomit, although none appeared during life.³ The writer of these pages has seen an interesting case of copious ejection of well-marked black vomit occurring in a fatal attack of colic. The disease ended fatally in a few hours, and will be alluded to again more in detail in a subsequent part of this essay. Dr. Kelly saw the same kind of discharge at the moment of death from phthisis pulmonalis;⁴ and we are indebted to Dr. R. Armstrong, already mentioned, for the following account of a case of the same kind: "A marine, invalided at Barbadoes, was sent to Jamaica Hospital to wait for a passage to Europe; he was in the last stage of phthisis, with purulent expectoration, hectic paroxysms in the evening, and diarrhoea. On the fourth day after admission, he complained of general indisposition and loss of appetite; the tongue was clean, and there were no symptoms indicative of any other disease than the affection of the chest. In the evening, he brought up a small quantity of black vomit, became delirious, and died the following morning. On dissection, the stomach was found to contain about a pint and a half of this fluid."⁵

But these examples must suffice. They establish, beyond a doubt, not perhaps the frequent, but certainly the occasional occurrence of black vomit in diseases differing more or less from the yellow fever. It may be that in some of the instances mentioned, occurring as they did in yellow fever regions, and at a period of the year when that disease usually shows itself, the effect will be attributed by some to the influence of the peculiar poison giving rise to the latter. Yet when we take into consideration, that the fever did not prevail at the time, and that the cases in question presented none of its characteristic symptoms, we can scarcely be justified in explaining their occurrence in that way; while, in other instances, the discharge of black vomit took place under circumstances which render such an explanation perfectly inadmissible, and compel us to refer it to causes totally independent of those of yellow fever.

These facts show, therefore, that the occurrence of black vomit, as already stated, is not by itself sufficient to characterize the disease. Equally certain

¹ *Op. cit.*

² Dickinson, *op. cit.* p. 51.

³ *Influence of Climate*, p. 169.

⁴ Amer. Journ. Med. Sci. xiv. N. S. p. 383.

⁵ *Influence of Climate*, p. 169.

is it, that other facts demonstrate the impropriety of assigning a different nosological position to, and of refusing to view in the light of true yellow fever, or referring to causes different from those to which this disease owes its origin, cases presenting its well-known characteristic symptoms, on the score of their not being attended with the discharge of the black matter in question. In illustration of the inadmissibility of such a conclusion, appeal may be made to the well-known circumstance that, with few exceptions, none of those who recover from the fever throw up coffee-ground matter, which, when it does present itself, is almost exclusively an attendant on fatal cases. Nay, it is not less true, that even among those who die, and especially when the disease ends suddenly or rapidly, or the brain is early implicated, black vomit often fails to show itself.¹ In this city, in 1820, it was computed to have done so in nearly one-third of the fatal cases.² It was frequently absent during the formidable epidemic of Barcelona, in 1821.³ In Gibraltar, in 1814, black vomit was rarely seen.⁴ In the eighty-fourth regiment (British) at Jamaica, in the epidemic of 1827, the black vomit, according to the surgeon's official report, rarely appeared in fatal cases, although the fever was so severe that one hundred and forty men died in six weeks.⁵ Dr. Bancroft remarks, that in cases in which the brain suffers much, and these are not unfrequent, the black vomit does not commonly occur.⁶ Dr. R. Jackson observes, that if the fever terminates before the third day, black vomiting is scarcely ever seen; also, when the disease does not go through the usual processes, which is the case in the concentrated form of the fever in persons of a phlegmatic, and of what he calls the gangrenous temperament (the form which prevailed at Grenada in 1793), for in this the black vomit occurs "on some occasions near the last hours of life; but not often, and only when the vascular action has been excited to a considerable extent in the preceding course of the disease."⁷ During the epidemic which prevailed on board the French frigate l'Hermione, at the Havana, the black vomit was very frequently absent; for in three hundred and twenty-three cases which fell under the observation of Mr. Maher, that symptom was only noticed seven times.⁸ In New York, in 1822, the black vomit was also of comparatively rare occurrence. In two hundred and fifty-four cases which ended fatally, this symptom appeared only in eighty or ninety.⁹ In 1819 it was equally rare.¹⁰ At

¹ Bone on Yellow Fever, p. 4; Lewis, New Orleans Journ. iv. p. 159.

² Jackson; an Account of the Yellow or Malignant Fever which appeared in the City of Philadelphia in 1820, p. 56.

³ Rochoux, Recherches sur les différentes Maladies qu'on appelle Fièvre Jaune, p. 552.

⁴ Cyc. of Pract. Med. ii. pp. 272-3.

⁵ Ib. p. 272.

⁶ Essay on the Yellow Fever, p. 13.

⁷ A Sketch of the History and Cure of Febrile Diseases, i. p. 94.

⁸ Annales Maritimes for 1842, pp. 847, 850.

⁹ Townsend, pp. 163-4; Pascalis, J. Méd. de Marseilles, v. p. 140.

¹⁰ C. Drake, Med. Repos. xxii. p. 136.

Natchez, in 1823, it was only a casual symptom, occurring most commonly in the congestive form of the disease.¹ In Gibraltar, in 1828, according to Dr. Gillkrest, of one hundred and ninety-six cases, only six vomited it during life. Dr. Davy, in a note to Blair's excellent Essay on the Yellow Fever, alludes to an epidemic at Barbadoes, in 1811, in which the gastric symptoms were very inconsiderable. And the same absence of it, though not always to the same extent, has been noticed in other cities of this country and the West Indies, and on board of infected vessels.²

It is to be remarked, that in many of the fatal cases in which the matter of the black vomit is not ejected from the stomach, it may sometimes be detected in that organ during life by the swelling of the abdomen and the gurgling noise heard on motion.³ More frequently it is discovered on dissection.⁴

Nor is it less to be borne in mind that considerable difference is found to exist as regards the frequency of this symptom, in different places, or at different times in the same place. While, as we have seen, it occurred seldom on some occasions in the West Indies; at Dominica, in 1838,⁵ and at Guadaloupe, during several years,⁶ it was found in a large majority of fatal cases. At Galveston, in 1839, it was of frequent occurrence, and indeed constant in bad and fatal cases.⁷ During the epidemic of 1839, at New Orleans, the black vomit was less frequently noticed than it had been in former seasons,⁸ but in 1844 it again showed itself in a large number of cases, and, indeed, was proportionally more common than heretofore.⁹ Dr. Blair informs us that at Demerara, in 1837, the mortality amounted to four hundred and four out of two thousand and seventy-one cases. Of those who died, three hundred and sixty-six had the black vomit.¹⁰ While in New York, as we have seen, the discharge occurred but rarely, even in fatal cases. We learn that, in former epidemics, the number of cases in which it was observed amounted to full one-half of those that died.¹¹ In Charleston, it was comparatively seldom encountered in 1817, 1824, and 1827; while in 1835 it was frequent.¹²

¹ Merrill, Phila. Med. and Phys. Journ. vii. p. 245.

² Irvine, p. 30; Valentin, p. 27; Archer, Med. Rec. v. p. 68; Baxter, Med. Repos. xxi. p. 3; A. Smith, Amer. Journ. Med. Sci. xxv. p. 503; Stone, New Orleans Journ. ii. p. 553; Dickson, Eclectic Journ. iv. p. 110; Evans on Yellow Fever, p. 257; Osgood, p. 12; Bally, Typhus d'Am. p. 240; Blair, p. 82; Pym, 2d ed. p. 81; Minutes of the Proceedings relative to the Fever which occurred on board the Macedonia, p. 29.

³ Dickson, Essays, p. 350; Wood, i. p. 301.

⁴ Michel, Charleston Journ. v. p. 748; Townsend, p. 190; R. Armstrong, p. 169; Louis, p. 218; S. Jackson, p. 56; Dickson, Chapman's Journ. iii. p. 231; Ticknor, N. A. Journ. iii. p. 228; A. Smith, Amer. Journ. Med. Sci. xxv. p. 503.

⁵ Edin. Med. and Surg. Journ. liii. pp. 82-3.

⁶ Rochoux, *op. cit.* p. 552.

⁷ A. Smith, Amer. Journ. Med. Sci. xxv. p. 503, and Essay, p. 15.

⁸ Rept. pp. 160, 325.

⁹ New Orleans Journ. vii. p. 43.

¹⁰ Pp. 49, 82.

¹¹ Townsend, pp. 164, 194.

¹² Dickson, Eclectic Journ. iv. p. 110.

From all that precedes—from the fact that the ejection of black vomit is observed, occasionally at least, in other and diversified complaints, and, on the other hand, that it fails to present itself in a large number of cases as regards the true nature of which there can be no difference of sentiment—even in many of those that terminate fatally—we cannot, as already stated, regard it as sufficient by itself to characterize the disease as true yellow fever, or coincide in sentiment with those who draw a line of demarcation between cases otherwise presenting the same or kindred phenomena founded on the occurrence of the discharge in some and its absence in others. But, while entertaining these views, every one conversant with the disease from personal observation, and who has made himself acquainted with the results obtained in various parts of yellow fever regions, whether in tropical or temperate latitudes, is aware that the black vomit occurs much more frequently in true yellow fever than in any other form of febrile or other complaints. Indeed, though, strictly speaking, rather a peculiar termination than a symptom of the disease, since it does not occur till late in the attack, and even then only in a certain category of cases, yet these, owing to the malignancy and usual fatality of the disease are so numerous, and the occurrence of the discharge among them so common, that the black vomit may be regarded not strictly as pathognomonic of the disease, but as a highly useful diagnostic sign. Indeed, there can be no doubt that when it presents itself in more than a few isolated cases, more particularly when it is associated with other symptoms clearly appertaining to the fever, or when, in the absence of these, it occurs during the existence of an epidemic, it stamps the disease with a character which prevents it from being mistaken for any other, and affords us one of the most useful means for drawing a line of demarcation between cases in which it is observed, and others which prevail at the same time, but run their course to recovery or death without exhibiting it.

Not only is the black vomit a very frequent attendant on yellow fever during life; but it is almost constantly found after death in the cavity of the stomach, of the duodenum, or of some portions of the intestinal tube. We have already seen that it is not unusually found there, especially in the former organ, in cases in which it was not ejected during the course of the disease, and it seldom happens that the same result is not obtained when such ejection has taken place. It is recorded by almost every writer who has devoted attention to the pathological anatomy of the disease; by some of whom it is represented as of very ordinary, by others as of constant occurrence. Dr. Blair remarks that black vomit in the stomach is the rule, its absence the exception.¹ Dr. A. Smith, of Texas, met with it in all the autopsies he made with, perhaps, a single exception.² Dr. Webb says: "I think I was present at more than one hundred *post-mortem* examinations of subjects who died of yellow fever at Barbadoes. The stomach was distended with gas, and

¹ P. 102.

² Trans. of N. Y. Acad. of Med. i. p. 64.

contained more or less black vomit. I do not recollect having been present at the opening of any body when black vomit was not found."¹ And other investigators, whether in this city, during the various fearful epidemics by which it has been visited, from 1793 to the present year, in other parts of the United States, in Europe, in the West Indies, the southern coast of this country or Africa, have made similar statements.²

The black vomit usually makes its appearance at the opening, or about the middle of the second stage of the disease; sometimes at the decline of the first stage; occasionally, but rarely, during the first or febrile paroxysm. From this, it will be easily perceived by those who are aware of the ordinary duration of those stages which, though varying somewhat in different cases and in different seasons, do not do so very materially, that the most usual period of its appearance is about the fourth or fifth day. In some instances it occurs earlier, and sometimes later. It has, in some cases, as Dr. Dickson and others remark, shown itself within twenty-eight or thirty hours from the commencement of the attack,³ or even sooner. The second day is not unfrequently mentioned as that of its appearance.⁴ On the other hand, we find it sometimes retarded as late as the seventh, eighth, or ninth day, or even much beyond.⁵ The following table, showing the number of cases out of a total

¹ Second Report on Quarantine, p. 366. Lond. 1852.

² Physick, Med. Repository, v. p. 130; Ib. in Rush, ii. p. 92; Ffrith, pp. 36, 37; Caldwell, Fever of 1805, p. 99; Parrish, Med. Museum, iii. p. 88; Lowber, ib. v. pp. 19, 20, 21, 22; Lawrence, Phil. Med. and Phys. Journ. x. pp. 4, 7, 9, 10, 11, 258; Kelly, Am. Journ. xiv. N. S. p. 282; Harrison, New Orleans Journ. ii. p. 139; Waring, p. 49; Nott, Am. Journ. N. S. ix. p. 280; Valentin, p. 180; Gros, p. 19; Chabert, p. 13; Fever of New Orleans in 1820, p. 10; Ticknor, North Amer. Journ. iii. p. 229; Heustis, Topegs. of Louisiana, p. 22; Dickson, Philad. Med. and Phys. Journ. iii. p. 256; Ib. xiv. p. 206; A. Smith, Am. Journ. xxv. p. 504; Hicks, New Orleans Journ. v. p. 221; Slade, ib. i. pp. 86, 94; Hayne, Charleston Journ. vi. p. 342, 628, &c.; Townsend, pp. 190, 191; Dahmas, p. 15; S. Jackson, p. 56; Arejula, pp. 418, 426, 427; Louis, pp. 80, 81, &c.; Pariet, p. 418; Palloni, p. 11; Burnett, p. 243; Fellowes, 68; Vance in Pym, p. 6; O'Halloran, pp. 189, 192; Audouard, pp. 151, 152; R. Jackson, Fever of Spain, p. 88; Imray, Ed. Med. and Surg. Journ. liii. pp. 82-3, 90; Ib. lxiv. p. 330; Copland, iii. p. 161; Blair, p. 92; Arnold, pp. 317, 318; Osgood, p. 12; Vatable, p. 348; Gillespie, p. 70; Pugnet, p. 265; Ralph, Ed. Med.-Chir. Trans. ii. p. 80; J. Clark, p. 19; Catel, p. 12; McArthur in Johnson, p. 349; Frost, Med. Repos. xiii. p. 253; Hunter, p. 161; R. Jackson, Sketch, i. pp. 79, 114; Ib. Treatise, p. 265; Dubreuil, Journ. Universelle, viii. p. 329; Caillot, p. 167; Keraudeen, p. 7; Savarési, p. 461; Hacket, Med.-Chirurg. Rev. xvi. p. 290; Evans, pp. 215, 216; Cyclop. of Pract. Med. ii. p. 275; Rufz, p. 18; Bally, p. 194; R. Armstrong, p. 169; Maher, pp. 845, 884; Grant, p. 47; Bone, pp. 26, 27; Bancroft, p. 24; Belcher, Ed. Med. and Surg. Journ. xxiii. p. 251; Furlong, Med.-Chirurg. Journ. xxv. p. 290; Boyle, p. 234; Rochoux, pp. 351, 532; Dict. des Sci. Med. xv. p. 341; Levacher, p. 76.

³ Dickson, Am. Journ. ii. p. 73; Kelly, ib. xiv. p. 384.

⁴ Imray, Ed. Med. and Surg. Journ. liii. p. 83.

⁵ Bone, p. 3.

of three hundred and sixty-six, in which the symptom was observed on different days of the disease in Demerara, during the epidemic of 1837,¹ will apply with sufficient exactness to other places and other seasons, to be used in illustration of the subject before us:—

Day of the dis.	1	2	3	4	5	6	7	8	9	10	11	12	13	Uncer- tain.	Black vomit doubtful.
No. of cases	2	5	32	76	89	83	26	15	10	7	2	2	1	5	11
Rate per ct.	0.09	0.24	1.72	3.67	4.40	4.10	1.25	0.72	0.48	0.31	0.09	0.09	0.04	0.24	0.52

The black vomit has, from the earliest period in the history of the yellow fever, been viewed by professional and unprofessional observers, as a highly unfavourable sign. It is more so than the jaundiced condition of the skin, being, in that respect, according to Dr. Blair, who has paid much attention to the subject, in the proportion of 75.68 to 46.23. Indeed, the ejection of black matter from the stomach, or its effusion in that cavity, has usually been found to portend, with almost unerring certainty, the approach of death. Such has been the case in some of the epidemics of our city, as also in those of other parts of this country, Europe, and tropical regions, when the discharge upwards of even a small portion of the fluid has proved with few, if any exceptions, the precursor of a fatal issue.² In other places and seasons, perhaps also in the hands of other physicians, the black vomit has not been found so universally to indicate an unfavourable issue. At all times, and even during the most fearfully malignant visitations of the disease, a few cases present themselves in which the patients escape after throwing up the justly dreaded matter; while on some occasions the number of recoveries, notwithstanding the advent of the discharge, is comparatively large. Vatable says, in reference to the epidemic of Guadaloupe in 1826: "We have seen men leave and rejoin their regiments (corps) who, during several days, had thrown up the matter of black vomit."³ Dr. Ralph saw three cases of recovery among the sick of his regiment at Barbadoes in 1817.⁴ Dr. Dickson remarks that the black vomit is not always fatal;⁵ and, in another publication, states that in 1827, at Charles-ton, the number of recoveries after the discharge was great beyond all former example.⁶ Five per cent. of black vomit cases, as we are told by Dr. Lewis,

¹ Blair, p. 82.

² Rush, iii. p. 61; iv. p. 34; Currie, p. 39; Caldwell, Fever of 1805, p. 85; Par-
rish, Med. Museum, iii. p. 192; S. Jackson, p. 56; Lining, ii. p. 429; Ashbel Smith,
p. 32; Shecut, p. 120; Merrill, New Orleans Journ. viii. p. 6; Gros, 17; Fever on
board the Macedonian, p. 29; Rouppe, pp. 408, 411; Imray, Ed. Journ. liii. p. 82;
Ib. lxiv. p. 329; Desportes, i. p. 199; Lemprimere, ii. p. 68; Rochoux, p. 280, &c.;
Evans, p. 248; Valentin, p. 168; Bally, p. 279; Musgrave, Med.-Chirurg. Trans. ix.
p. 134; R. Jackson, i. p. 171; Palloni, p. 85; Pariset, pp. 448, 449; R. Arnold, p.
321; Ferguson, Recol. p. 125; Cortel, p. 11; Anderson, p. 7; Audouard, p. 7.

³ An. Marritimis, p. 350. 1827. ⁴ Edinb. Med.-Chirurg. Journ. ii. p. 73.

⁵ Phil. Med. and Phys. Journ. xiv. p. 206.

⁶ Am. Journ. ii. p. 73.

recovered at Mobile in 1843.¹ In reference to the epidemic of Charleston in 1852, Dr. Cain writes to me: "There have been quite a number of recoveries after black vomit in this epidemic." Of fifty-nine cases which recovered on that occasion in the city ward of Roper Hospital, under the care of Drs. Huger and Post, two threw up black vomit, and nine got well after passing it copiously by stool.² In his account of the epidemic of 1793, Dr. Rush states that many recovered who had thrown up the black-coloured matter. Of 366 cases of black vomit mentioned by Dr. Blair as occurring at Demerara in 1837, out of 2,071 cases of the disease, only 277 died, giving the centesimal mortality stated above, viz. 75.68.³ "Fifty-five soldiers affected with the gastric disease called yellow fever, Dr. Bone says, were received into the Naval Hospital, Barbadoes, in 1821; 17 of these vomited; 33 did not vomit; 11 of them died; and of these, 6 vomited and 5 did not vomit."⁴ Cases of recovery after the discharge of black vomit were not unfrequent in the yellow fever which has lately prevailed epidemically on the coast of Brazil. Three occurred on board of a single ship, the Tweed. Others in another English vessel, the Cormorant.⁵

"Mr. Amiel, who witnessed three yellow fever epidemics at Gibraltar, states that he met with two instances in children, where recovery took place after the appearance of black vomit. Surgeon Collow, of the 84th regiment, says, in his official report to the Army Medical Board, relative to the yellow fever, as it appeared in his corps at Fort Augusta, Jamaica, in the year 1827, that the black vomit 'is not invariably fatal; examples, more than one, in my regiment, are now living.'"⁶ Dr. Bone, deputy inspector of hospitals, who has had an experience of many years in the West Indies, is very precise upon this point, in an official report relative to an epidemic which prevailed at Barbadoes, in 1821. He there not only refers to some cases in which recovery took place after having vomited black ("China ink-coloured") fluid, as well as flaky brown blood, usually (according to him) the precursors of the real black vomit, but enters into minute details relative to two cases ultimately terminating favourably, when the fluid ejected possessed the most unequivocal characters."⁷

In the Havana, as we learn from Mr. Maher, it was found by Dr. Belot, whose experience in the yellow fever, obtained in private and hospital practice, is very ample, that while the brownish matter, containing floeculi, is invariably an indication of mortal issue, the chocolate-coloured matter, which, like the former, passes under the name of black vomit (and which corresponds to the China ink-coloured matter, mentioned by Dr. Bone, and considered by him as the precursor of the real black vomit), is not necessarily so.⁷ Dr.

¹ New Orleans Journ. iv. p. 159.

² Simons, Charleston Journ. viii. p. 368.

³ Blair, p. 82.

⁴ Bone, p. 4.

⁵ Dr. W. McKinley, Edin. Monthly Journ. Oct. 1852, pp. 335, 337.

⁶ Cycl. ii. pp. 273, 274.

⁷ Annales Maritimes, p. 843.

Rufz met with one instance of recovery, at Martinique, in 1838, after the occurrence of real black vomit.¹ At Barcelona, some few recovered,² and cases of a similar kind are alluded to by Alex. Hosack,³ E. H. Smith,⁴ Desportes,⁵ Harrison,⁶ and R. Jackson.⁷

It may be remarked that, in reference to the degree of importance to be attached to the black vomit in a prognostical point of view, much depends on the peculiar appearance and physical properties of the fluid, and the quantity in which it is ejected. We have seen that, according to Dr. Bone, recovery may take place so long as the discharge consists of China ink-coloured fluid, as well as flaky brown blood, and that Dr. Belot entertains hopes so long as the patient throws up only a chocolate-coloured matter. Much to the same effect are the remarks of Dr. Lewis, of Mobile, who found that so long as the black vomit is raised in small quantities, thick and pasty, and is thrown up with a natural mucus, there is some hope of recovery. When, on the other hand, the fluid is thin and black, and contains the coffee-ground sediment, its appearance should always be viewed as a sign of fearful omen.⁸

In cases of recovery, the discharge is sometimes protracted a very long while, and even in some cases continues amid a train of phenomena, with which we could scarcely have anticipated to find it associated. In a case stated by Dr. Logan, and referred to by Professor Dickson, of Charleston, black vomit was thrown up during the convalescence of a juvenile patient, whose recovery did not seem at all retarded by the circumstance or its cause. In one case, under the care of Dr. Prioleau, the patient lived after ejecting the black vomit for fourteen successive days.⁹ I have heard of a case in which the discharge continued, though in very small quantities, for twenty-one days. The patient recovered. These, however, are unusual cases. More commonly, convalescence is soon established, and the discharge ceases. In a few fatal cases, the patient lingers a few days after the appearance of the black vomit. One, mentioned by Dr. Dickson, lived ten days after its occurrence. But in the majority of instances, life is not long protracted. The patient is sometimes carried off in less than twenty-four, sometimes in two or three hours.

In some fatal instances, the discharge of black vomit comes on unexpectedly, and is almost immediately or soon after followed by symptoms of impending dissolution. During the months of July, August, and September last, this was found to occur in several of the cases which fell under my personal observation. The patients, after appearing to be doing well, during the

¹ Report by Dr. Chervin, p. 16.

² Audouard, F. J. de Barcelonne, p. 64; Periodico de la Soc. de Salud. Publica, p. 265.

³ Essay on Yellow Fever, p. 15.

⁵ Maladies de St. Domingue, i. p. 222.

⁷ Fever of the South Coast of Spain, p. 121.

⁸ New Orleans Journ. iv. p. 159.

⁴ Webster's Collection, p. 120.

⁶ N. O. J. ii. p. 135.

⁹ Dickson, Am. Journ. ii. p. 73.

deceptive period of the metaprosis or remission, or presenting few symptoms portending immediate danger, suddenly threw up more or less of the matter, and were soon attacked with convulsions or other phenomena of like import.

In other instances, the first effect of the ejection seems to be of the most beneficial kind. On its occurrence, the feelings of the patient improve; some of the more unpromising symptoms mend; the restlessness diminishes; the inability to take food, the tension and distress at the epigastrium and abdomen generally subside; the tongue assumes a cleaner and more healthful appearance, and the patient often experiences a singular tranquillity of body and mind.¹ Dr. Blair, who has, in an especial manner, pointed out these circumstances, remarks, that when, with sudden improvement of the tongue, and other symptoms, there exists dirty or other discoloration of the surface, and at the period of the disease when black vomit might be expected, then succussion will sometimes detect the presence of the effused fluid before vomiting occurs.² But, whether the detection be made or not, effusion, under these circumstances, may justly be suspected or feared at the time or very soon after, unless accompanied by other changes of a favourable character; the connection between it and the sudden amendments in question being, as already stated, frequently noticed.

The discharge of black vomit, contrary to what might have been anticipated, is not necessarily attended with debility of mind and body. So far from this, experience in this city and elsewhere teaches that, in not a few cases, the retention of the muscular power and intellectual functions, self-possession, and courage is remarkably great, at a time too when every other symptom portends the approach of death. This occurs often in the last stage of the disease, when the latter has run its usual course, and also in what has been denominated walking cases, in which the inflammatory or pyrexial stage is wanting, and the disease, while presenting the remarkable feature in question, passes at once to the malignant stage. Dr. Harrison remarks, that "some will even get out of bed and walk about, declaring they are perfectly well, and wish to dress themselves."³ The following statements will serve to illustrate this. The first, for which we are indebted to Dr. Dickson, is interesting: "I saw a patient in our Marine Hospital, in 1817, walking from ward to ward with a vessel under his arm to receive the black vomit, which he threw up from time to time. He continued this practice for ten days, until within fifteen minutes of his death, which took place suddenly and altogether unexpectedly to the poor fellow; he had always expressed the most cheerful and confident expectation of recovery, notwithstanding this usually much-dreaded symptom."⁴

¹ Currie, Fever of 1793, p. 26; Lewis, New Orleans Journ. iv. p. 159; Daniel, Fevers of Savannah, p. 72.

² *Op. cit.* p. 80.

³ New Orleans Journ. ii. p. 133.

⁴ Philadelphia Med. and Phys. Journ. xiv. p. 206.

A man came into the office of a physician, in New Orleans, and said that his friends had persuaded him to consult a physician, although he himself believed there was no occasion for it; whilst conversing, he asked for a basin, and threw up a large quantity of black vomit.¹ Dr. Townsend, in his Essay on Black Vomit, mentions the case of an individual who walked about two hours before his death while vomiting up the fluid in question. (P. 5.) Dr. Dashiell relates a case in which it unexpectedly appeared whilst a man was getting shaved in a barber shop, at Vera Cruz. Dr. Fenner, from whom I derive the above fact, says: "I myself have seen a man lying quietly in his bed at the Charity Hospital (New Orleans) *reading a book*, while the fatal black vomit was upon him. He seemed to be surprised at the minute inquiries I made about his case, and as I turned, asked if I thought *he was in any danger?* I gave him an equivocal answer, and left him in blissful ignorance. He resumed his story, and I saw him no more. The next morning he was dead."²

An officer said to Dr. Ferguson: "You see, I am posting fast to the other world, and you cannot prevent it; but I am as easy as if I was in a post-chaise." Another, the governor-general of the West India and Leeward Colonies, "when he contemplated that harbinger of death, the black vomit, pouring from his stomach, on the evening preceding his death, rose from his couch, in full possession of all his acumen, to execute some legal deeds of importance, declaring at the same time, in reply to my dissuasions, he could with equal facility have drawn out a plan for military operations."³

In many cases the ejection of the black matter has been preceded by much nausea and distress at the stomach, as well as by much vomiting. In such instances the substances thrown up consist usually, at first, of the fluids swallowed, mixed or not with more or less bile. These are followed by mucus containing particles of flocculi, resembling bees' wings, and soon after by the fully-formed fluid. In some instances this gradation is not observed, and the patient, after vomiting at first the contents of the stomach, ejects suddenly and unexpectedly a larger or smaller quantity of well-constituted coffee-ground matter. In some few cases the vomiting is preceded, as Dr. Musgrave has observed, and as I have also seen, by a wedge-like sensation at the cardia, or as if a marble were sticking there. I do not know that this symptom has ever failed to be followed by the ejection in question. But while such is usually the course noticed in respect to the antecedents of the black vomit, it not unfrequently happens that, prior to the discharge of that fluid, the patient had not been troubled with nausea or vomiting; that the stomach had retained everything swallowed—food, drink, or medicine—and that no burning sensation had been complained of before.⁴

¹ Kelly, Am. Journ. N. S. xiv. p. 280.

² Fever of New Orleans in 1847, New Orleans Journ., v. p. 211.

³ Recollections of a Professional Life, &c. pp. 146-7.

⁴ Musgrave, Med.-Chir. Trans. ix. p. 134.

The black vomit is sometimes preceded by the ejection of a white,ropy, acid fluid, which makes its appearance at the close of the second stage, and is sometimes discharged in considerable quantities, and with much relief to the symptoms. It is generally attended with considerable retching. This fluid was very frequently noticed during the epidemic of Demerara, in 1837, when it received the appellation of "premonitory," or "precursory" fluid, or "white vomit."¹ In a late epidemic at Barbadoes, referred to by Dr. Davy, the white vomit was not of unfrequent occurrence, though not so common as to arrest attention.² Osgood says that in some cases there is a vomiting, not of black matter, but of a watery substance, of a slimy nature, and with it whatever the patient may have lately taken of drink or medicine. (P. 12.) In many instances the substance preceding the black vomit is found copious and colourless. (Ralph, 66.) Cathrall³ describes it as of the colour of whey or muddy water, and containing an acid in a free state (*Ib.* 9). Dr. Harrison states that in the stomach of an individual whom he dissected, at the New Orleans Hospital, he found no black vomit, but a whitish acid-smelling liquid, amounting to about half a pint.⁴ Whether these liquids were similar to that described by Dr. Blair, we have no means at present to decide positively, though we may presume that they differed but slightly from it. In several of the cases of the disease which occurred among us during the preceding season, this white acid matter was ejected. In one instance, when a fair sample of it was obtained, it was thrown up on the fifth day of the attack, and forty-eight hours before the black vomit made its appearance. Dr. Blair found it to occur more frequently than the black vomit itself in the proportion of 417 of the former to 366 cases of the latter. The black vomit generally followed the precursory vomit; but many cases of death occurred after the latter only. The earliness of its appearance as antecedent of black vomit is shown by the following table:—

Day of disease	1	2	3	4	5	6	7	8	9	10	11	12	13	Unascertained.
No. of cases in each day	10	66	103	95	72	37	21	8	1	0	1	2	0	1

The period at which this whitish fluid is ejected, its acidity, and the possibility of its presence in the stomach at the time of the formation of the black vomit, and the result of experiments made with it, and to which I shall advert on another occasion, lead to the supposition that it plays an important part in the formation of that matter.

Except in some cases, when the ejection from the stomach is easily effected from beginning to last, the expulsive efforts of that organ are of a different kind in the first and last stages of the yellow fever. At first, there is violent

¹ Blair, *op. cit.* p. 80.

² Notes on Blair, *ib.*

³ Mem. on the Analysis of the Black Vomit, p. 4; Fever of 1793, p. 9.

⁴ *Op. cit.* p. 148.

retching, straining, suffusion of the face, and spasms of the recti muscles. But when black vomit is established, these violent, distressing, and often painful efforts cease; and as Dr. Blair remarks, the stomach seems to act alone. It propels its contents by an effort of its own, and apparently independent of extraneous aid, and the matter is, as it were, spouted out, or gulped up rather than regularly vomited—without straining or effort on the part of the patient—almost without his consciousness, and apparently in an involuntary manner;—the whole being the result of a jerk or slight convulsive effort, as effected by a sudden contraction of the stomach, diaphragm, and abdominal muscles; or it would almost seem of the stomach alone.¹ The patient, says Dr. Blair, will speak to you, lean his head over the bed, eject his mouthful, or basinful of black vomit, and resume his conversation with scarcely any interruption. Another writer, Dr. Evans,² says: “The patient rarely lifts his head off the pillow; but, turning it slightly to one side, by a sudden effort, but without straining, casts a stream from him. The stomach fills again rapidly, and the same phenomena are repeated.”

The first emission of this dreaded fluid frequently takes place suddenly and without warning. It is in such cases unpreceded by nausea or the distress which usually accompanies vomiting, and brought on by a slight change of posture on the part of the patient, or it follows hiccough, or an effort to discharge flatus from the stomach. The subsequent discharges occur much in the same way; but whether so or not—whether preceded by nausea or otherwise—the emission of the black vomit does not take place in the manner of ordinary emesis. The muscular motion, and the sounds accompanying the ejection are peculiar. There is no violent retching; a loud or hollow sound is heard, caused apparently by a hiccough mingled with a cough. These facts are familiar to all who have witnessed the disease, and have been pointed out by numerous writers.³

The matter ejected sometimes comes up by mouthfuls, as if in rumination, not unfrequently in a manner which Dr. Daniel, of Savannah, has not improperly likened to that by which a dyspeptic, or a woman far advanced in pregnancy, spits up offending matter.⁴ At other times, perhaps more generally, the fluid is, as it were, pumped up very suddenly, and propelled in a spout, as from an engine, to a very considerable distance. Dr. Rush, in his account of the epidemic of 1793, remarked that the contents of the stomach were sometimes thrown up with a convulsive motion, that propelled them in a stream to a great distance, and in some cases all over the clothes of the

¹ P. 80.

² P. 248.

³ R. Armstrong, p. 169; Lewis, New Orleans Journ. iv. p. 159; Copland, iii. p. 154, Am. Ed.; R. Jackson (Spain), pp. 73, 83, 101; R. Jackson, Sketches, i. p. 72; Barry in Boyle, p. 272; Wood, i. p. 301; Harrison, p. 182; Gros, p. 11; Cartwright, Med. Recorder, ix. p. 10; Imray, Edinb. Med. and Surg. Journ. pp. 53, 82; Dickson, Philad. Med. and Surg. Journ. iii. 256; Ticknor, North Amer. Journ. iii. 228; Blair, p. 80; Bone, on Yellow Fever, p. 3.

⁴ Fevers of Savannah, p. 72.

bystanders.¹ Dr. Harrison has seen it, in the New Orleans Charity Hospital, thrown entirely over the bed of the next patient, and fall on that adjoining;² and similar results have been found to obtain by every one who has observed the disease.³

In the yellow fever of this and other cities of the United States, as also in that of Europe and tropical regions, the quantity of the black matter ejected from the stomach, though at first small, becomes soon, in some cases, very large. Dr. Currie, in his account of the fever of 1793 (p. 26), speaks of the quantity thrown up as being enormous. The quantity, says Dr. Cathrall, "sometimes becomes so much augmented, that I have known one gallon vomited in forty-eight hours, besides a considerable quantity, which was of a much thicker consistence, that was discharged by the bowels."⁴ Dr. Lowber states that, in a case which came under his observation, the stomach contained, upon admeasurement, thirty-two ounces of black vomit.⁵ Dr. Ffirth states that the fluid is thrown up by pints, quarts, and even gallons.⁶ In a case mentioned by Dr. Townsend, of New York, the quantity found in the stomach amounted to two quarts.⁷ The disparity between the quantity of the black vomit thrown up and that of the fluids swallowed, is often noticed by the patients themselves. Dr. Bone informs us that an officer, who died of the yellow fever in Barbadoes, in 1821, remarked, that a pint of fluid taken produced a quart of black vomit in no time.⁸ Dr. R. Jackson states that the discharge is "enormously great, so far exceeding the quantity of what has been taken down in drink, as if the stomach had become the outlet of all the fluids contained in the body."⁹ The quantity of fluid ejected in most cases, says Sir William Pym, who saw the disease in both hemispheres, wonderfully exceeds the quantity drunk; indeed, all the fluid in the body seems to be pouring into the cavity of the stomach; for when it has, to all appearance, been emptied several times, and the patient thinks himself relieved from any painful straining, he is, in the course of a few minutes, without having tasted drink, under the necessity of having recourse to the basin.¹⁰ Dr. Ticknor speaks of it as astonishingly great¹¹—Gillkrest, as considerable¹²—Archer, as sometimes incredible;¹³ and Lempriere,¹⁴ Ralph,¹⁵ Musgrave,¹⁶ J. Clark,¹⁷ A. Hosack,¹⁸ Evans,¹⁹ Barry,²⁰

¹ Works, iii. p. 60.

² New Orleans Journ. ii. p. 132.

³ Evans, p. 248; Blair, p. 80.

⁴ Trans. of Phila. Philos. Soc. v. p. 118; Ib. Mem. p. 5.

⁵ Medical Museum, v. p. 24.

⁶ A Treatise on Malignant Fever, &c. 1804, p. 38.

⁷ Fevers of New York in 1822, p. 191. ⁸ Essay on Yellow Fever, p. 4.

⁹ Sketches, i. p. 171.

¹⁰ Bulam Fever, p. 230.

¹¹ N. A. Med. and Surg. Journ. iii. p. 228.

¹² Med. Record. v. p. 68.

¹³ Cyclop. ii. p. 272.

¹⁴ Diseases of the Army, &c. ii. p. 65.

¹⁵ Med.-Chir. Trans. of Edinb. ii. p. 67.

¹⁶ Med.-Chir. Trans. ix. p. 134.

¹⁷ Fever of Dominica, p. 14.

¹⁸ Hist. of the Yellow Fever of New York in 1795, p. 14.

¹⁹ Op. cit. p. 248.

²⁰ Boyle, Med. Hist. Account of the Western Coast of Africa, p. 272.

Wood,¹ Harrison,² Merrill,³ R. Arnold,⁴ and others, have dwelt with greater or less emphasis on the same fact. The vomiting in all such cases is provoked by swallowing something, either fluid or solid; but it is often the effect of the mere distension or irritation of the stomach produced by the matter itself; or is excited by a change of position in bed, by sitting, or standing up, and, according to Dr. Blair, by the *act of falling asleep.* (80.)

When once established, the black vomit very usually continues, without considerable interruption, and is brought up at short intervals, every time nausea and vomiting are excited by any of the aforesaid causes. In some cases, however, especially when it shows itself early, it has been found to intermit, nothing coming up for hours but the medicines and nourishment taken.⁵ Dr. Dickson has seen it cease for several days;⁶ and there are not wanting cases to show that it has occasionally ceased entirely, the stomach retaining everything for some time before death.⁷

The black vomit, notwithstanding its name, is rarely of a black colour. As seen in this city, it is more frequently of a dark-brown, bister, chocolate, or umber hue. In some instances the colour approaches to a dark slate, or to a muddy claret. It is of two kinds. The one consists of a number of dark flaky particles, which have been not unaptly compared to butterfly or bees' wings, and assume gradually the appearance, with more or less distinctness, of the grounds of coffee, of soot, or finely powdered charcoal, floating in a quantity, more or less considerable, of thin glairy fluid bearing a slight resemblance to a weak infusion of flaxseed or green tea. This latter fluid, when filtered, differs slightly in colour, being limpid like water, of a deep brandy or rum colour, yellowish or light green. The aforementioned flakes or striæ are at first, or throughout in the milder forms of the disease, limited in point of number, and of a light or grayish slate or chocolate tinge. But as the disease advances, and especially in the more malignant cases, they increase in number, and become darker and darker until the whole appears uniformly blackish or even black. The fluid when completely formed, though homogeneous in appearance when discharged, separates soon on standing into two parts; the one consisting of the flaky or coffee-ground matter already mentioned, and the other of the fluid in which they were held in suspension. This flaky matter, which in some cases seems collected in masses of greater extent and entangled in mucus, and at others is divided very minutely and equally mixed, after subsiding to the bottom of the vessel, either in distinct particles or in the form of a dark powder, is readily incorporated with the fluid by the least agitation. When kept a long while, they become perfectly separated, but when shaken and reincorporated, show less disposition to separate again. In some instances, the quantity of the

¹ Pract. of Medicine, i. p. 301.

² N. O. Journ. ii. p. 147.

³ New Orleans Journ. viii. p. 6.

⁴ Am. Journ. N. S. iii. p. 319.

⁵ Musgrave, Med.-Chir. Trans. ix. p. 134.

⁶ Phila. Med. and Phys. Journ. xiv. p. 206.

⁷ Musgrave, *loc. cit.*

fluid portion is, from the outset to the close of the attack, very large compared to the solid particles. In others, the reverse is the case; the substance vomited, though presenting all the characteristic features of the coffee-ground or granular matter, being almost or completely deprived of its fluid attendant. In a case I had occasion to see in July last with Dr. Keating, the black vomit presented that character. In another case, the proportion of solid matter in the fluid thrown up was very small; while on dissection, sixteen hours after death, the stomach was found to contain about six ounces of thick coffee-ground or granular matter with scarcely any admixture of fluid.

The other form of the black vomit is more homogeneous in character, and presents the appearance of dark-coloured inspissated mucus or thin tar, or of a thick mixture of molasses and water. In some instances, the matter vomited consists of grumous or dark-coloured blood, fluid or coagulated, without admixture of coffee-ground particles or pale fluid;¹ while in others again, the matter described above is mixed with coagula of more or less pure blood; or, failing to maintain the character above described, assumes more or less the appearance of blood. In some instances, the discharge towards the termination of the disease becomes nearly sanguineous.

These peculiarities and modifications have been noticed in all our epidemics. They are referred to by Dr. Jackson in his *Account of the Fever* of 1820, p. 81, and not unfrequently presented themselves during the recent outbreak of the disease among us.

Such are the appearances presented by the black vomit in the yellow fever of this city. If we now turn to the descriptions given of it by writers who have observed the disease in other parts of the United States, in Europe, and tropical climates, we shall find them to differ but slightly and on unimportant points from that which precedes.

According to Dr. Hosack, the black vomit, as observed in New York, consists of a dirty-brown water, with a sufficiency of bloody turbid matter, which sometimes falls to the bottom of the vessel, or floats on the surface of the fluid. "This matter, I have observed to exhibit itself in different forms: 1. In flakes like tinder, floating on the fluid discharged. 2. It appears to be discharged in the form of blood and mucus, which gradually subsides. But the more common evacuation is that of the third—the coffee-ground discharge, and which immediately falls to the bottom of the vessel, precisely resembling the appearance of coffee-grounds."² At Norfolk, Valentin found the matter vomited to assume a brownish hue similar to coffee-grounds, then to become blackish and of thicker consistence, sometimes resembling tar, or a mixture of soot and water.³ Of the characteristic marks of black vomiting, Dr. Smith, of Galveston, says: "They are dark flocculi swimming in a fluid, varying from

¹ Cathrall, On Black Vomit, pp. 4, 6, 7; Rush, Yellow Fever of 1793, p. 61; Wood's Practice, i. p. 301; Monges, N. A. Med. and Surg. Journ. ii. p. 57.

² Hosack's Practice, 389.

³ Traité de la Fièvre Jaune, 167.

a brownish, slate-coloured, or whey-looking liquor to one resembling a strong decoction of coffee. In the first portions vomited and in the milder forms, the flocculi are generally few and minute. In more aggravated cases, they are very abundant, and present every variety of shape, like fine powder, and stilliform, linear, or in shreds. In the more malignant cases, the black vomit approaches in appearance to dissolved blood. The flocculi subside very slowly to the bottom of the fluid, and the latter is seen to be of a light-greenish or whey-coloured tinge. Sometimes, however, the flocculent portion swims on the surface, and in appearance is not unlike the inside of the dry mushroom called puff-ball. In portions of black vomit which had been kept a few days, the flocculi which at first had subsided slowly arose and swam on the surface of the fluid. The common comparison of black vomit to a turbid decoction of coffee, probably conveys the best idea of its usual appearance.”¹ Gros compares it to the lees of ink; Girardin, to India-ink dissolved in water, and keeping in suspension membranous shreds or flakes.² Dr. Middleton Michel, of Charleston, whose microscopical researches on the black vomit are entitled to high praise, calls attention to the diversity of colour of the fluid as observed by him. “Though generally reddish-black, it often presented a brown, reddish or blackish-brown, and sometimes claret colour.” The fluid, obtained from a patient who ejected large quantities of it and ultimately recovered, was bright red, recognizable as pure blood with black flocculi in the sediment. In another case, it was of a chocolate colour with a brownish residuum. “Some obtained from my own patients resembled a strong infusion of senna, holding in suspension the ordinary black clots and granules; others, even in a state of rest, were more like a solution of bismuth and India-ink; some again were perfectly black.” The intensity of colour, Dr. Michel farther remarks, is much influenced by rest or motion, as it acquires a denser shade whenever the fluid is agitated, and the granules, flocculi, and coagula are made to float; on the contrary, these particles, when the liquid is at rest, settle at the bottom, being specifically heavier than the former, leaving the supernatant liquid comparatively clear, sometimes transparent as serum. “This is not always the case, however, as I have seen the solid portions of the same sample equally divided into such as formed a sediment and such as floated on the surface. The quantity which may be produced and ejected in a given time materially affects the colour, this being of a brighter red whenever the fluid is thrown up in abundance until it frequently amounts to pure blood; whereas, the dark-

¹ A. Smith, Am. Journ. xxv. 503.

² Moultrie, p. 11; Lewis, N. O. J. iv. p. 159; Dickson, Am. Journ. ii. p. 72; Ib. Philad. Med. and Phys. Journ. xiv. p. 215; Nott, Am. Journ. N. S. ix. p. 281; Simons’s Address, p. 30; Davidge, 104; Harrison, N. O. J. ii. p. 182; Kelly, Am. Journ. N. S. xiv. 378; Drysdale, Med. Mus. i. 136; Dalmas, 8; Gros, 10; Girardin, 35; Cartwright, Recorder, vol. 9; Lining, 296; Ticknor, N. A. J. iii. 228; Townsend, 161, 164; Drake, Repos. xxi. 135; Seaman, Webster Col. 9; E. H. Smith, ib. 126; N. O. 1839, p. 381; Shecut, 120.

black and granular aspect with the coffee-grounds sediment, described as characteristic of black vomit, belongs particularly to the smaller portions which are early vomited.”¹

In 1828, at Gibraltar, the matter vomited in the last stage of the disease, or found in the stomach, appeared under the following forms: 1. Thin flakes or portions of a brownish-black colour, floating, like broken-up wings of a butterfly, in a glairy fluid or infusion of black tea. 2. A perfect resemblance to a mixture of soot and water, or to the contents of a coffee-pot when the clear part of the coffee has been poured off. 3. A homogeneous, intensely black substance, having a jelly-like consistence, and adhering in great abundance sometimes to the mucous coat.² Pym describes it as a brownish fluid resembling dirty water mixed with a dark-coloured, flaky matter which floats upon the surface, and at last a matter resembling coffee-grounds or thin pitch.³ Others have alluded to its chocolate colour; all have compared it to a mixture of coffee-grounds, in a thin fluid, to the juices of the cuttle-fish, and referred to the flakes or filaments it contains.⁴ Dr. Bone, Deputy Inspector of Hospitals, who, it would appear, paid particular attention to the character of the fluids ejected from the stomachs of persons labouring under the yellow fever, and the results of whose observations on this and other subjects connected with the disease, originally presented in a report dated Barbadoes, 1822, are contained in an inaugural dissertation by his son, speaks of a fluid like Indigo or China ink, brought up with some straining. A brown fluid, resembling urine in appearance; brownish black, not flaky, proceeding from the fauces and gums, and perhaps in some cases from the pulpy cardiac opening of the stomach; brown, flaky blood mixed with mucous matter—precursor of true black vomit; and lastly, true black vomit, which is also blood altered in its passage through the vessels of the villous coats.⁵ Another writer remarks that flocculi of lymph are first seen floating in a straw-coloured fluid. This is followed by the black vomit, “which, on being collected in a basin, appears of a chocolate colour. On allowing it to settle, a sediment resembling the grounds of coffee subsides to the bottom, while the supernatant fluid appears of a straw colour, resembling the serum of the blood. On shaking it together, it reassumes its primary chocolate appearance.”⁶ From all quarters, indeed, we learn that the matter thrown up from the stomach in the latter stage of the yellow fever is characterized as a mixture of fluid more or less limpid with a matter resembling coffee-grounds; that it usually presents dark-coloured flocculi swimming in the fluid; that it assumes at times

¹ Microscopical Researches on the Black Vomit of Yellow Fever, Charleston Journ. viii. 333.

² Gillkrest, Cycl. ii. 274, note.

³ On the Bulam Fever, p. 230.

⁴ Audouard, 60; Pariset, 417; Fellows, 54; Caisergue, 169, 170; Berthe, 87, 89; Blin, 6; Velasquez, 11; Palloni, 4; Proudfoot, Edinb. Journ. xxvii. 250; Pym, 35, 41; Boyd in Johnson, 300; Rochoux, 478; Jourdain, Annales de la Med. Physio. v. p. 260.

⁵ Bone, Essay, p. 3; Gillkrest, *op. cit.* ii. 274.

⁶ Belcher, Edinb. Journ. xxiii. 250.

the appearance of diluted soot; and that, in some cases, it is black as ink or tar; liquid or thick as thin pitch; that in others, it is of a brown-chocolate or a slate colour.¹ While such is the usual character of the matter ejected from the stomach, it is sometimes found everywhere, as with us, to consist of blood more or less pure, either red or black, and liquid or coagulated.²

About the time that the matter ejected from the stomach assumes the aforesaid appearances, or a short time before, the intestines give passage to a substance which often bears a strong resemblance, and, occasionally, is perfectly analogous to the former. The passages become brown or black with coffee-ground, or something not unlike powdered charcoal floating in a serous fluid; or present the characters of molasses, or thin pitch, in regard to smoothness, tenacity, colour, or consistence; or of ichorous thin fluid, like the washing of flesh. In many cases, they contain streaks, or a large admixture of blood, and, at times, consist entirely of grumous blood. Intestinal discharges of this kind, bearing a strong analogy to the matter thrown up from the stomach, have been noticed in all places where the yellow fever has appeared.³ In

¹ Halliday, 10; Dickinson, 135-8; Desportes, i. 199; Blanc, Dis. of Seamen, 437; Hillary, 151; Dict. des Sc. Med. xv. p. 337; Pugnet, 356; Evans, 235; Bancroft, 12; Blair, 81; Madrid, 25-6; McArthur (in Johnson), 347; Vatable, 346; Moseley, 438; Savarési, 275; Gillespie, 42; Chisholm, i. 174; Jackson, Sk. i. 72; Osgood, 11; Gilbert, 66; Caillot, 28; Maher, 843; Bally, 226, 239; Rochoux, 280, 552; Dariste, 162; Imray, *op. cit.* 83; Jackson, Tr. 261; Pym, 230; Wilson, 182; Arnold, 10; R. Armstrong, p. 169.

² Lining, ii. 419; Pariset, 417; Evans, 247; Ralph, 68; Jackson, Sk. i. 3; Dariste, 165; Rochoux, 280, 552; Bally, 237, 239; Caillot, 19; Maher, 842; Archer, 67; Blane, 437.

³ Moultrie, p. 11; Deveze, p. 24; Archer, Med. Recorder, v. p. 67; Currie, p. 26; Thomas, p. 84; Drysdale, Med. Museum, i. p. 136; Stone, New Orleans Journ. ii. p. 563; Kelly, Am. Journ. N. S. xiv. p. 374; Dalmas, p. 9; S. Jackson, pp. 60, 80; Bally, Typ. d'Am. pp. 230, 243, 248; Shecut, p. 120; Gros, 11; Girardin, pp. 24, 36, 56; Alexander Hosack, p. 15; Munson, Webster's Collection, p. 180; E. H. Smith, ib. 121, 122; Dickson, Chapman's Journal, iii. p. 256; C. Drake, Med. Rep. xxi. p. 135; Townsend, p. 158; ib. on Black Vomit, p. 5; Valentini, 171; Ticknor, North Amer. Med. and Surg. Journ. iii. p. 228; Louis, p. 232; Blin, p. 7; Fellowes, pp. 54, 55; A. Smith, Am. Journ. xxv. p. 502; Audouard, pp. 58, 61, 186; Caisergue, p. 169; Pym, p. 234; Berthe, p. 86; Gillkrest, Cycl. ii. p. 271; Boyd (in Johnson), p. 300; Velasquez (in Pariset on Fever of Cadiz), p. 11; Pariset, ib. p. 30; ib. Fever of Barcelona, pp. 422, 423; Report on Fever of New Orleans in 1839, p. 333; R. Jackson, Sketches, i. pp. 72, 94; Chisholm, i. p. 166; Lempriere, ii. p. 85; McArthur (in Johnson), p. 347; Osgood, p. 12; Imray, Ed. Journ. liii. p. 81; Bancroft, pp. 10, 12; Hillary, pp. 151, 152; Madrid, 2d part, p. 25; Gillespie, p. 42; R. Jackson (Disease of Jamaica), p. 262; Pugnet, p. 356; Vatable, p. 346; Desportes, i. p. 199; Blanc on Seamen, p. 440; Belcher, Ed. Journ. xxiii. pp. 249, 251; Levacher, p. 73; Caillot, pp. 18, 19; Dariste, pp. 163, 165; J. Clark, p. 14; Rochoux, pp. 284, 480; Dickinson, pp. 128, 131; Arnold, p. 10; Evans, p. 257; Dict. des Sci. Med. xv. p. 337; Daniel, Fevers of Savannah, p. 72; Merrill, New Orleans Journ. viii. p. 6; Dickson, Am. Journ. ii. p. 73; Hicks, New Orleans Journ. v. p. 221; Slade, ib. i. pp. 86, 94; Hume, p. 200; Musgrave, Med.-Chirurg. Trans. ix. p. 107; O'Halloran, Fever

cases in which these discharges have occurred, as also in those in which they have not been noticed during life, the intestines—sometimes the large, but more generally the small—are found on dissection to contain a more or less considerable portion of the matter.¹ In some instances, it is found in the colon, while the small intestines, and even the stomach, are free from it. As Dr. Nott, of Mobile, well remarks, the matter discharged from, or found in the large intestines, is “frequently dried, resembling pickled walnuts pounded, and sometimes black seybala.” Sometimes the black pasty matter is plastered over the whole surface of the small and large intestines, the black colour being more distinct as we approach the stomach. In one case, noticed by Dr. Nott, the whole canal, small and large, was coated with a thick tenacious matter of a purple colour, like blackberry jam, a compound intermediate between blood and black vomit.²

The black vomit has been stated to be odorless.³ Nevertheless, Dr. Blair, while making that statement, remarks that, when distilled, the clear water that comes over has a peculiarly offensive odour, and that, if inspissated, the extract, although not fetid, nor pungent, nor exceedingly disagreeable, produces on some persons instant retching on being smelled. By others, however, a different result has been obtained. Cathrall found the fluid from which the flaky matter had been separated by filtration to have a “faint sweetish animal odour. The matter which remained on the filter had the same odour as the fluid (pp. 9, 10). Bally speaks of the fetid odour of the black vomit (p. 239). Deveze found it to possess an hepatic smell (p. 24). According to Barry, it had a raw, unpleasant odour, “so peculiar that, on entering the chamber, the state of affairs became immediately manifest.”⁴ Dr. Hester says that it has a fresh, disagreeable, nauseous smell.⁵ Dr. F. M. Robertson says

of Xeres, &c. pp. 82, 127; Warren, pp. 15, 39; Chabert, p. 10; Amiel (in Johnson), p. 264; Arejula, pp. 172, 424; Waring, p. 51; Grant, p. 33; R. Armstrong, p. 179; Copland, iii. p. 158; Savarési, p. 271; Lining, Ed. Med. and Phys. Ess. ii. p. 423; Burnett, p. 247; Frost, Med. Repos. xiii. p. 32; R. Jackson, Fever of Spain, p. 76; Vance (in Pym), p. 63; Davidge, p. 103; Gilbert, p. 60; Halliday, p. 10; Simons, Charleston Journ. viii. p. 368; Paton, of Jamaica, Lond. Lancet, Oct. 1853; Am. Ed. p. 288; Ffirth, 28.

¹ Fellowes, p. 68; Bancroft, p. 24; O'Halloran, p. 189; Deveze, p. 63; Waring, p. 52; Louis, p. 102; Arejula, pp. 418, 421, 422, 426; Audouard, pp. 151, 152; Lowber, Med. Museum, v. pp. 19, 20, 21; Vatable, p. 348; Physick, Med. Rep. v. p. 130; ib. in Rush, iii. p. 92; Pugnet, p. 363; Blane, p. 94; Slade, New Orleans Journ. i. pp. 86, 88, 90, 94; Hayne, Charleston Journ. vi. pp. 346 to 628; R. Jackson, Sketches, i. pp. 79, 81, 89, 95; Gillkrest, Cyclop. ii. p. 276; Gillespie, p. 71; J. Clark, p. 20; Copland, iii. p. 161; Caldwell, Fever of 1805, p. 99; Savarési, p. 461; Bally, p. 197; R. Jackson, Fever of Jamaica, p. 265; ib. Fever of Spain, p. 88; Frost, Med. Rep. pp. 13, 253; Bone, p. 27; A. Smith, Am. Journ. xxv. p. 505; Kelly, Am. Journ. N. S. xiv. p. 378; Rochoux, pp. 360, 361, 535; Dalmas, p. 15; Levacher, p. 76.

² Amer. Journ. ix. N. S. p. 280.

³ Blair, p. 81; Pariset, p. 419.

⁴ Boyle, Topography and Diseases of Western Coast of Africa, p. 272.

⁵ New Orleans Journ. x. p. 228.

the odour is peculiar.¹ Heastie states that the fluid has a fermentative odour.² Palloni says it was "materia fetidissima," (p. 5.) Dr. Evans remarks that there is now and then a strong and peculiar odour diffused through the apartment in which this matter is kept, which attaches itself to the furniture and even to the clothing of those who are exposed to it (p. 250). Levacher, who like Dr. Evans became familiar with the disease at St. Lucia, makes a similar statement, representing the odour as insipid and ammoniacal, and akin to that of gangrenous eschars, and, in illustration of the power possessed by that odour to attach itself to surrounding objects, cites a striking example of its being perceptible in a bundle of papers which had been left a few hours in a sick room (p. 83). Rochoux found it insipid, sometimes fetid (p. 552); and Audouard represents it as possessing a putrid smell (p. 7). In the various trials I have made on this subject, the black vomit, when recently thrown up, has usually been found to present the odour ascribed to it by Dr. Hester. In some few instances, the smell was very disagreeable, and almost fetid.

The ejection of the black vomit is generally preceded and accompanied by a sensation of soreness and burning in the stomach, along the oesophagus, and in the fauces and mouth; as well as anxiety and pain at the praecordia.³

From this and other circumstances the matter of the black vomit has been supposed to be of an aerid and exoriating or even corrosive nature.⁴ But, although such may often appear to be the case, owing to the peculiar composition of the fluid, the state of the secretions, and the morbid sensibility and inflamed condition of the parts over which it passes, there is little doubt that, except under certain circumstances, the fluid is void of the excessive acridity ascribed to it.⁵ In the experiments of Cathrall, it imparted, it is true, an acrid sensation when applied to the lips. But on the tongue it did not produce the least corrosive effect. Nor did it affect the skin of the hands and different parts of the body. Cats, dogs, and fowls were fed with it without any injurious, or, indeed, sensible effects on their digestive organs; while fumes, obtained by the evaporation of the matter, proved inoffensive to those who inhaled them.⁶ Like the last-mentioned writer, Dr. Ffirth fed dogs and

¹ Examiner, Oct. 1839.

² Treatise on the Nature and Causes of Yellow Fever, p. 21.

³ Rush, iii. p. 60; Kelly, p. 377; Evans, pp. 233, 256; Fellowes, p. 54; R. Jackson, i. pp. 68, 72; Barton, p. 10; Waring, p. 45; Blane, p. 438; E. H. Smith, p. 118; Bally, p. 216; Dickinson, p. 131; Girardin, p. 171; Campbell, of Charleston (in Watts), p. 250; Boyle, p. 203; Pym, pp. 228, 229; Ticknor, North Amer. Journ. iii. p. 222; Rochoux, pp. 289, 480; Grant, p. 31; Lewis, New Orleans Journ. iv. p. 159; Musgrave, Med.-Chirurg. Trans. ix. p. 134; Bryson, p. 66; Nott, Am. Journ. ix. p. 282.

⁴ Th. Cooper; Discourse on the Connection between Chemistry and Medicine. Phila. 1818, p. 34; Dariste, p. 160; Dalmas, p. 8; Valentin, p. 166; Desportes, i. p. 203; Pugnet, p. 356; Gros, p. 10; Rochoux, p. 290; Girardin, p. 33; Dict. des Sci. Med. xv. p. 336; Nott, Amer. Journ. p. 282; Lefoulon, p. 49; Audouard, p. 6.

⁵ Physick, Repository, v. p. 130.

⁶ Cathrall, pp. 20, 21, 22, 23.

cats with the matter of the black vomit, during days and weeks—he did more; he inoculated dogs with the fresh matter—subjected himself to the same operation—applied the fluid to the surface of a cut made on his arm, secured it there for two days by means of sticking-plaster, and repeated the experiment above twenty times in various parts of his body. He inserted the matter in his eyes—swallowed a large quantity diluted, or pure; but from these experiments no injurious effects ensued. When the matter was applied to wounds, very slight inflammation, sometimes though not always resulted, and the wounds healed kindly. In general, not more inflammation followed “than would have occurred had no black vomit been introduced.” When it was dropped into the eye “it felt a little uneasy for about a minute; but produced no pain or inflammation. I have,” says Dr. F., “frequently had cold water to produce the same effect.” When swallowed, it produced no nausea or pain—no more effect, indeed, than if so much water had been taken.¹ Dr. Cherviu, who on several occasions swallowed a quantity of the matter of black vomit, felt no inconvenience from it.² Neither did Dr. Guyon, in the numerous experiments he made at Martinique in 1822.³ Dr. McKininal, of the British navy, for certain reasons which need not be stated here, swallowed a wineglassful of fresh black matter and felt no inconvenience therefrom. “It did not impair his appetite for dinner.”⁴

To the taste the black vomit is at times more or less insipid.⁵ In some instances it has been found to have a saline and bitter taste.⁶ More frequently, however, it possesses an acid flavour, of which patients often complain, and which gives rise to the sensation of acridity, and to the excoriating effects just referred to. It is acid in reaction. Litmus paper is turned red by immersion in it, and turmeric paper, changed by an alkali, is restored to its original colour. It effervesces with alkaline carbonates, requiring sometimes a large quantity of potash to neutralize it;⁷ and the presence of a predominant

¹ A Treatise on Malignant Fever, pp. 53, 54, 55, 56, 57, Phila. 1804.

² Rapport la à l'Acad. R. de Med. p. 30.

³ Lefort, Mém. sur la non Cont. de la F. J. pp. 31, 126.

⁴ Bryson, *op. cit.* 55.

⁵ Physick's Repository, v. p. 129; Cathrall, Philad. Trans. v. p. 128; Gros, p. 9; Evans, p. 224; Wilson, p. 182; Wood, i. p. 701.

⁶ New Orleans Journ. x. p. 228.

⁷ Nott, Am. Journ. ix. p. 281; Monges, North Amer. Journ. ii. p. 57; Wood, i. p. 301; Lyons, Lond. Med. and Phys. Journ. 1828; Lewis, New Orleans Journ. iv. p. 159; F. M. Robertson, Examiner, Oct. 1839, ii. p. 665; Harrison, p. 148; Evans, p. 249; Blair, pp. 80, 81; Lyons, *loc. cit.*; Cathrall, p. 11; Davy, Fever of Barbadoes, Ed. Journ. lxxii. p. 280; ib. notes to Blair, p. 81; Riddell, New Orleans Journ. ix. p. 420; Michel, Charleston Journ. viii. p. 335.

If liquor potassæ be added to black vomit beyond what is required for neutralizing the acid, the granular or flocculent sediment becomes dissolved, and the vomit becomes homogeneous and perfectly clear, like light-coloured port wine. In one case, $\frac{3}{2}$ i of black vomit, mixed with an equal quantity of water, required $\frac{3}{2}$ ii of liq. potass. to render it transparent and homogeneous.—Blair, p. 81.

acid, the hydrochloric, is proved by the effect upon it of the nitrate of silver, which throws down a white precipitate, which is again redissolved by ammonia, but not by nitric acid.

Observations made in Jamaica showed the existence of an oily fluid floating on the surface of the black vomit in sporadic cases of yellow fever, which there is common; and that, too, in instances where no oleaginous medicines had been administered.¹ From experiments, long ago made at Barcelona, and the results of which were confirmed by a competent chemist of Paris,² the presence of this oleaginous fluid would seem to have been ascertained. It was there found that the quantity of this substance was increased by the addition of acids.³ I am not aware that anything of the kind has been discovered in this city or in any part of this country where the black vomit has been carefully examined. In some instances, though not in all, the microscope certainly revealed the presence of a notable quantity of oil-globules; but as most of the individuals who had ejected the matter experimented upon, or in whose stomachs it was found, had taken spirits of turpentine, castor-oil, or essence of beef, there is reason to believe that the globules in question were derived from these substances, and constituted no essential part of the fluid containing them.

Much has been said in olden and modern times respecting the source, nature, and manner of production of the black vomit; for although we occasionally meet with authors who, like Dr. Daniel, of Savannah,⁴ frankly avow that, from all they have observed, the only conclusion to which they can satisfactorily arrive, concerning those several points is, that they are yet to be explained; the very large majority of those who have written on the yellow fever, feeling less discouraged, have endeavoured to reach definite conclusions on the subjects in question, and enforced their views with more or less prolixity and pertinacity. Early, however, as attention has been called to the source and nature of the black vomit, and zealously as the investigation has been conducted, considerable difference of opinion existed in former days, and, indeed, continued until recently to exist, on the subject. On few questions, indeed, have more discordant theories been advocated.

It will not be necessary to examine in detail all these theories; for, independently of the circumstance that such a survey would require more space and time than the nature of the present essay will justify, not a few of them have been so ephemeral in their character, and are so evidently destitute of foundation that they merit but slight, if any, attention. In the present state of our knowledge respecting the pathology of the yellow fever, it would be a waste of time, for example, to inquire into the merits of the opinion entertained formerly by a few writers, that the black vomit is exclusively or principally

¹ Davy's Notes on Blair, p. 81.

² Laugier, Professor at the Museum of Nat. Hist.

³ Pariset, p. 636.

⁴ Autumnal Fevers of Savannah, p. 72

the result of a gangrenous or sphacelated slough or exfoliation of the coats of the stomach macerating in the secreted fluids of that organ. Few pathologists of the present day admit the existence of such a condition in yellow fever. Even if real sphacelus or gangrene of the stomach were to occur, it is doubtful whether it would give rise to a fluid like the black vomit, in such large quantities especially. The fluid, besides, is ejected in cases in which recovery takes place, and in which therefore there cannot be a shadow of probability of gangrene having occurred; while it has been found, on dissection, in stomachs the soundness of which could not be disputed. Still less need we dwell on the idea thrown out by Fordyce,¹ and subsequently adopted by Breschet and Heusinger,² who considered it to be an exudation similar to that producing the incrustation upon the tongue, lips, and teeth, in malignant fever. The former has no advocates at the present day, and the second has died with its celebrated promulgator and his few followers. More useful will it be to examine those theories which have commanded the attention of the profession at large, and continue to this date to enumerate advocates.

By many experienced and accurate observers, the black vomit was, and by some contemporary pathologists is, regarded as consisting of little more than altered bile, sometimes, though not necessarily, mixed with blood.² This opinion is principally founded on the supposed identity of the yellow fever with the remittent bilious fever, in which the vomiting of bile of various degrees of purity is a very ordinary, if not universal symptom; as well as on the circumstance that bile often assumes a dark or even black colour; that a fluid more or less allied in appearance to the black vomit has been discovered not only in the stomach, but in the common duct and duodenum; that in some cases of yellow fever a fluid, the bilious character of which is undisputed, is ejected from the stomach; that the real black vomit occurs often in cases where there has been no effusion of pure blood, at least in which none has been observed during life or discovered after death, that the black vomit bears no resemblance to the latter fluid, and that it is almost invariably associated with jaundice.

Others have regarded it as of hepatic origin, but not as of a bilious nature—

¹ *Dissertations on Fevers*, p. 335, Am. ed.

² *Researches on the Accidental Production of Pigments and Carbon in the Human Body*.—See *Cyclop. of Pract. Med.* iii. p. 94.

³ Desportes, *Maladies de St. Domingue*, i. p. 202; Towne, *A Treatise on the Diseases most frequent in the West Indies*, p. 21; Lining, *A Description of the American Yellow Fever*, Edinb. *Essays and Obs. Med and Phys.* ii. p. 419; Deveze, *Traité de la F.* J. p. 24; Drysdale, *Med. Museum*, i. p. 136; Davidge, *Notes to Am. ed. of Bancroft*, p. 506; J. Clark, *A Treatise on the Yellow Fever of Dominica*, pp. 13, 66; Berthe, *Précis Hist. de la Maladie qui a régné dans l'Andalousie en 1800*, p. 87; Robert, *Guide Sanitaire*, &c. i. p. 337; A. Hosack, *History of the Yellow Fever of New York in 1795*, p. 14, note; Stuart, *Diss. on Black Vomit*, p. 48; J. Mitchell, *Yellow Fever of Virginia in 1742*, *Med. and Phil. Register*, iv. p. 185; Heastic (A.), *A Treatise on the Nature and Causes of Yellow Fever*, p. 22; M'Cabe, *Military Med. Report*, &c., on *Diseases of the West Indies*, p. 24.

the product of a perverted or vitiated secretion of the liver. Such was the opinion especially of the late Dr. Cathrall, of this city, whose experiments on the black vomit attracted some attention at the period of their publication.¹ Disbelieving the opinion of its being putrid blood, because blood after becoming highly putrid and kept for six months imparts a red colour to water, a property not destroyed by a high degree of putrefaction; arguing also that blood differs from the black vomit in not consisting of flaky particles, and giving no proof of containing an acid in a disengaged state; opposed besides to the belief of its being bile, either putrid or rendered black by admixture in the stomach with nitric acid, which was supposed by Dr. Mitchell, of New York, to be generated in that organ and the intestines, and at the same time believing that dissection had shown the black flaky particles or colouring matter of the vomit to proceed from the gall-bladder, Dr. Cathrall thought himself justified in referring it to the cause mentioned. In illustration of the correctness of this opinion, he called attention to the circumstance proved by many facts, that the secretory economy of the liver may be so far arrested in its healthy action, by the progress of disease, as to assimilate a fluid having not the least analogy to bile, in the same way that the kidneys secrete sometimes a fluid not at all like urine.

By others, again, the black vomit has been viewed as the product of a morbid secretion of the inflamed vessels of the stomach, which in the healthy state secrete mucus and the gastric fluid. Of the advocates of this opinion, the greater number regard this secreted fluid as being of a sanguineous nature. Such was the opinion entertained on the subject by the late Dr. Physick, whose experiments on the nature of the fluid were made during one of our early epidemics.² Such also was the sentiment, more or less modified, of Drs. Rush,³ Caldwell,⁴ Stuart,⁵ Ffirth,⁶ Lowber,⁷ and Sanderson,⁸ of this city; of Drs. Shecut⁹ and Dickson,¹⁰ of Charleston; Belcher,¹¹ H. M'Lean,¹² R. Jackson,¹³ Dancer,¹⁴ and J. Wilson,¹⁵ of England. By the last-mentioned writer, whose views on all subjects connected with the etiology and pathology of the yellow fever are entitled to respectful consideration, the substance vomited is maintained to arise from the "perverted chemical action of the secerments of the stomach, intestines, and liver, especially the first," and

¹ Transactions of the American Philosophical Society, v. p. 125, and Memoir on the Analysis of the Black Vomit. Philad. 1800.

² Medical Repository, v. p. 129.

³ Works, iii. pp. 60, 61.

⁴ Fever of 1803, pp. 91, 92.

⁵ Essay on Black Vomit, p. 48.

⁶ Dissertation on Yellow Fever, p. 37.

⁷ Med. Museum, v. p. 26.

⁸ Med. Mus. v. p. 20.

⁹ Med. and Ph. Essays, p. 120.

¹⁰ Philad. Med. and Phys. Journ. xiv. p. 229.

¹¹ Edinb. Med. Journ. xxiii. p. 252.

¹² Mortality of Troops in St. Domingo, pp. 29, 30, 89.

¹³ Sketches, &c. i. p. 80, note.

¹⁴ Med. Assistant, p. 83, note.

¹⁵ On West India Fever, p. 211.

to be neither vitiated bile nor extravasated blood, since it possesses not the properties of either. "It appears," says Dr. Wilson, "that nature, in her distress, to relieve the turgid vessels of those viscera, pours forth the redundant blood through secretory vessels by which it is changed." Dr. M'Lean remarks that, from "the great determination of blood and the violence of the action in the vessels, immense secretions are made in the stomach, which, acquiring there a dark colour from the admixture of other fluids, and perhaps portions of the coats of the stomach," with some blood and bile, create what is termed the black vomiting.

Dr. R. Jackson, who originally thought that the black colour of the matter ejected arose from admixture of the black bile of the gall-bladder with the fluids of the stomach, subsequently came to the conclusion, from the results of observations on the dead body, that the colour proceeded from admixture with diseased secretions from the mucous membranes of the whole gastric system, more especially of the liver, and discharged from ducts or canals, not bloodvessels, the mouths of which, filled with dark-coloured fluid, he discovered in various parts of the viscera. More recently, Dr. Dickson, in the publication referred to, asks the question: Is it (the black vomit) or is it not a mixture of dark blood acted upon and closely combined with the gastric fluid? and answers it in the negative, "because in the vast majority of instances it is impossible to detect any of the reddish tint which blood, however altered, essentially possesses and retains. This tint it communicates in all cases of haematemesis proper to the contents of the stomach, so as to be unequivocally perceptible. In many patients, in the last stages of yellow fever, and occasionally of bilious fever, this hemorrhage occurs. It is then easy to discover the mixture of blood with black vomit in other matters ejected. A bit of white paper or rag dipped in any such mixture, in which the smallest proportion of blood is diffused, will not fail to show plainly enough the reddish hue."

From what precedes, as well as from what we gather in the writings of those who advocate the secretory nature of the black vomit, it will be perceived that the theory is little better than a conjecture. But it was the best that could be adopted, in the absence of information necessary to arrive at something more satisfactory, to account for the formation of the fluid. They were convinced, from the numerous facts observed, and a variety of circumstances to which attention will be called presently, that the black vomit differs essentially from bile or the product of any morbid operation of the liver. They perceived very plainly that it is the product of a diseased condition of the mucous surface of the stomach, probably also of the intestines, and that it is not poured into those organs from any neighbouring or distant part. They entertained besides, the belief that, though issuing from the minute blood-vessels of the stomach and bowels, which are sometimes found gorged with it, and the inflamed or congested state of which is evidently relieved by its effusion, the matter in question nevertheless differs too much from ordinary blood to justify its being regarded as simply a modified or altered condition of that

fluid, produced after its discharge into those cavities, or just before, through the agency of their morbid products. And having satisfied themselves on those points, but being at the same time unaware of many facts which have more recently come to light, and to which I shall soon advert, the pathologists mentioned could not well have avoided attributing the change effected in the blood to a vital process analogous to that which takes place in secretion. How far this opinion is entitled to our regard will be seen as we proceed.

By another and much more numerous set of writers, the black vomit is viewed in the light of an hemorrhagic effusion from the capillary vessels of the mucous coat of the stomach and bowels; in other words, of blood—real, though somewhat modified in its texture. This theory of the nature and source of this important fluid, though claimed as new by physicians of our day, may be traced up to an early period in the history of the yellow fever. It was advocated in the plainest possible terms, more than a century ago, by Dr. Henry Warren, of Barbadoes, whose letter to Dr. Mead on the epidemic which prevailed in that island in 1732, was issued in volume form in 1740, and constitutes one of the earliest professional records of the yellow fever in our language. “I ought to observe here,” says Dr. Warren, “that the fatal black stools and vomitings are vulgarly supposed to be only large quantities of black bile or choler; which false notion seems to be owing to that fixed, unhappy prejudice that the fever is purely *bilious*. But, let any one only dip in a bit of white linen cloth, he will be soon undeceived, and convinced that scarce anything but mortified blood is then voided; for the cloth will appear tinged with a deep bloody red or purple, of which I have made many experiments.”¹

Closely allied to these views, relative to the nature of the black vomit, are those of Dr. John Williams, who, in an essay on the yellow fever of Jamaica, which appeared in 1750, enumerates among the worst symptoms of the disease “strong and continual convulsions of the diaphragm, intercostal muscles, and stomach, aeruginose vomitings—then vomiting of black adust blood, appearing like the grounds of coffee mixed with acrid unfinished bile, the juices of the stomach and pancreas both very sharp.”² A similar opinion was about the same time adopted by Dr. Chevalier in his letters on the diseases of St. Domingo (p. 10), and other of the older writers, and has since been advocated by the highest professional authorities in this and other countries,³

¹ A Treatise concerning the Malignant Fever in Barbadoes and the Neighbouring Islands, &c. pp. 39, 40.

² Essay on the Bilious or Yellow Fever of Jamaica, 1750, p. 16.

³ Lind, Hot Climates, p. 185; Bruce in ditto, 186, note; Rouppe, Diseases of Seamen, p. 304; J. Hunter, p. 64; Blane, Diseases of Seamen, p. 410; Hillary, p. 151; Pugnet, pp. 356, 357; Lempriere, ii. p. 103; Stevens on the Blood, p. 330; Bancroft, pp. 39, 40, 43; Bone, in Cyclop. Pract. Med. ii. p. 274; Gillkrest, ib. p. 274; Rochoux, pp. 279, 552; Imray, Edin. Journ. liii. p. 91; Vatable, An. Maritimes, for 1828, p. 355; McArthur (in Johnson) on Tropical Climates, p. 350; Monges, North Am. Med.

some of whom had entertained at one time a different sentiment on the subject.¹

and Surg. Journ. ii. pp. 58, 59; Parrish, Med. Museum, iii. p. 189; Valentin, p. 168; Dubrucil, Journ. Univ. viii. pp. 321, 322; Dariste, p. 116; E. H. Smith, in Webster's Collection, pp. 120, 121; Maher, An. Maritimes for 1842, p. 893; Guyon on Fever of Gibraltar; ib. for 1830, p. 755; Lyon, Lond. Med. and Phys. for 1828; Arnold on Bilious Fever, p. 38; Pariset, Fever of Barcelona, 1821, pp. 361, 389, 638; Kelly, Am. Journ. N. S. xiv. pp. 382, 385; Waring, p. 52; Osgood, p. 26; Pym on Bulam Fever, p. 223; Evans, p. 248; Barry in Boyle, p. 272; Chambolle, Broussais's Journ. xiii. p. 200; Furlong, Med.-Chirurg. Rev. xxv. p. 291; Blair, p. 81; J. Davy's notes on Blair, p. 81; and Edin. Med. and Surg. Journ. vol. 72; Nott, Am. Journ. ix. N. S. p. 281; Garrison, N. O. Journ. ii. pp. 119, 147; Audouard, Recueil de Méd. p. 1, and Hist. Méd. de la F. J. de Barcelona, pp. 188, 189; Levacher, Guide Med. p. 83; Palloni, p. 5; Townsend, Fever of New York in 1822, p. 162; S. Jackson, Fever of Philadelphia in 1820; Essay, p. 81, and Philadelphia Med. and Phys. Journ. ii. p. 22; Irvine, of Charleston, pp. 24, 25, 26; Louis, p. 218; Desmoulin, Eccl. Repertory, xiii. p. 164; Ashbel Smith, Am. Journ. xxv. p. 503; ib. Trans. of N. Y. Acad. of Med. i. p. 61; Fenner, Southern Med. Rep. i. p. 581; ib. ii. p. 89; Lewis, New Orleans Journ. iv. p. 159; Dickinson, pp. 134, 135; Ferguson, Recollections, &c. p. 146; Wood, Pract. of Med. i. p. 301; Chervin, in Waring, p. 50; Merrill, New Orleans Journ. viii. p. 6; Grant, pp. 32, 47; Edin. Med. and Surg. Journ. lxix. p. 124; Michel, Charleston Journal, v. pp. 748, 749; ib. viii. pp. 333, 348; Shannon, Pract. Obs. p. 48; Craigie's Practice, i. p. 247; Copland, i. p. 979; ib. iii. p. 145; Dickson, Bell's Eccl. Journ. iv. p. 110; Carswell, Cycl. iii. pp. 88, 102.

¹ M. Audouard, whose earliest publication on the yellow fever appeared some eighty years after that of Warren, strangely enough sets himself up as having been the first to discover that the black vomit is not bile, but simply the result of an hemorrhagic effusion. He rates his fellow-commissioner, M. Pariset, very roundly for having appropriated to himself what he holds² in the light of his discovery, and entered into, without acknowledgment, all the particulars he had laid before the public two years before—even to the tasting of the black vomit. P. 6, note.

It would be easy to show that, in everything sensible M. Audouard has said, on the subject of the black vomit, or indeed of anything connected with the yellow fever, he has been anticipated. Of his publications we may say what Blumenbach is reported to have remarked of Gall's phrenological works: Everything good they contain belongs to some one else; and every novelty they teach is good for nothing. While on the subject, I must be permitted to call attention to another circumstance connected with the question of the origin of the theory before us. Dr. Michel, of Charleston, who has done much to advance our knowledge respecting the true nature of black vomit, says: "Early in 1740, Warren certainly speaks of the 'fixed and unhappy prejudice' that yellow fever is a 'purely bilious affection,' and states his conviction that the matter ejected contained no bile, and that cloths are tinged with a deep purple, or blood-red, when dipped into the vomit. The same opinion was promulgated by Dr. Pym, and seems to have been the one expressed by Hunter, Pringle, Sir G. Blane, and many others; but suffer me to ask," he continues, "whether it has been received in any other light than a plausible conjecture?" Farther on, after alluding to an antiquated and now forgotten opinion, respecting the nature of the fluid, he adds: "Yet, if we analyze the arguments of the present day, the equally ancient supposition of its being vitiated, or black bile, is the only choice of opinion left us." If the reader will refer to

ART. II.—*On Fatty Degeneration.* By J. W. C. ELY, M. D. (The Annual Discourse delivered before the Rhode Island Medical Society, Providence, June 29, 1853. Published by Request of the Society.)

ALL animal tissues are liable to transformations, and as the new tissue is usually inferior in chemical composition and in physical and vital properties to the old, this transformation has been very properly called degeneration. Dr. Williams, in his *Principles of Medicine*, specifies four kinds of degeneration, the fibrous, the granular, the fatty, and the osseous. Of these kinds of degeneration, allow me to call your attention to the third, namely, *fatty degeneration*. Much light has been shed on this diseased condition of the animal tissues from the recent labours of Williams, Paget, Rokitansky, Quain, Barlow, and other distinguished microscopic pathologists. The results of these researches are scattered over the pages of the various medical journals. A summary of what is now known on this subject, I hope, will not prove uninteresting to the Fellows of this Society.

Fatty degeneration is a transformation of normal tissue into molecular fat-granules. This change has been observed most frequently in the muscular and fibrous tissues, and in the various secretory organs of the body, but is not confined to them.

Muscle thus affected is of a pale yellowish fawn colour, compared by Laennec to dead leaves; sometimes it is of a dirty pink colour; when occurring in patches, it gives to the muscle a mottled appearance. The muscle is soft, flabby, and easily torn, and presents on section a granular instead of the normal fibrous appearance.

Rokitansky (in his *Manual of General Pathological Anatomy*) thus describes the physical appearances of the fatty changes in muscle.

"The earliest change is one of colour. The muscle has a pale-reddish appearance; and is found, on close examination, to be not uniformly discoloured, but stained irregularly of a yellowish or fawn colour, as well as marked with longitudinal pale-reddish streaks which follow the course of the fibres. As the stains of fat increase in size and coalesce, the muscle acquires an almost uniform fawn colour; but its fibrous arrangement still remains distinct. With

the various works, large or small, that treat of the subject in question, he will have no difficulty in finding that, so far from the ancient supposition of the bilious nature of black vomit being the only choice of opinion left, that supposition is now pretty generally discarded—that the sanguineous nature of that fluid is not generally considered merely as a plausible conjecture, but as a positive and admitted fact; and that though the microscope had not been called in aid before the year 1845, when it was applied to that purpose by Dr. John Davy, with results similar to those obtained more recently, proofs of that fact, of a sufficiently satisfactory character, had long been laid before the public, and regarded by numerous and competent authorities as perfectly conclusive.

the advance of the disease it becomes altogether of the colour of fat, sometimes being yellow, sometimes remarkably white, and resembling, accordingly, either tallow or spermaceti. No trace of its fibrous structure remains except some of its tendons or the cellular sheaths of its fasciculi. Up to this stage of the disease, the outline of the muscle has been preserved ; but, in the last stage, the mass of fat into which the muscle is changed mixes with the adipose structures around it. We may, then, find in a limb nothing of its muscles but remnants of tendons and aponeuroses, with their prolongations inwards."

In order to get a clear idea of the appearances presented under the microscope, by degenerated muscular fibre from the commencement to the completion of the change, it will be better to enter a little into the minute anatomy of muscle. Muscles are made up of bundles of primitive fibres, called fasciculi ; each fasciculus is encased in a transparent, tough, elastic membrane, or sarcolemma. These fasciculi are surrounded and held together by areolar tissue, which gives support to the capillaries and nerves of the part. The fasciculi present distinct transverse markings, and less distinct longitudinal ones. In some fishes, as the cel, the fasciculi cleave transversely into disks ; in other classes of the animal kingdom, as the mammalia, they cleave into fibrillæ.

Under the microscope the disks appear granular, as they are made up of a transverse section of all the fibrillæ. When the fibrillæ are examined with a sufficiently high power, each fibrilla appears made up of a line of rectangular cells, each cell containing a particle of muscular substance, named myoline.

"Before fatty degeneration commences in voluntary muscle," says Quekett, in his *Lectures on Histology*, "the transverse striae disappear ; and I have long known that the first trace of this disease is marked by a disturbance of the particles of myoline, which appear as so many very minute granules, scattered irregularly within the sarcocelima, leading one to suppose that the delicate cell around each particle had given way, thereby allowing the myoline to escape, and destroying all regularity both of the transverse and longitudinal markings. As the disease progresses, the myoline is replaced by minute highly-refracting globules of oil, until at last the whole sheath is full of them."

Mr. Hallet (*Edinburgh Medical and Surgical Journal*, 1849) found that a piece of the greater pectoral muscle, weighing one ounce, which had undergone fatty degeneration, yielded seven drachms and one scruple of oily matter. He also states that the outer fibres of a muscle first undergo fatty degeneration ; the inner ones becoming affected in time.

Complete fatty degeneration produces no diminution in the size, or change in the form of muscles thus affected.

The following (condensed from the 16th No. of *Ranking's Abstract*) illustrates this form of fatty degeneration :—

Mr. Erichson amputated the leg of a woman, aged 48 years, of a leucophlegmatic temperament ; for fourteen years she had suffered from abscesses in and about the foot, which resulted in necrosis of the bones of the foot and disease of the ankle-joint. The calf of the leg was not much wasted ; upon examination, the muscles appeared of their normal shape and size, but pre-

sented a pale fawn colour and almost waxy aspect, instead of the healthy reddish-brown. This change was most complete in the superficial muscles; a few healthy muscular fibres were found in the deeper layer. The same change was observed in the muscles of the sole of the foot. The microscope proved the change to be far advanced fatty degeneration. The stump healed kindly, thus showing that degenerated muscles will heal as well as healthy ones.

The following is from the January number of the *American Journal*, for 1853 :—

A man, aged 60, was admitted into the Massachusetts Hospital with an extensive ulcer of the leg. When twenty-four years of age, he cut into the cavity of the knee-joint with a broadaxe. After four months' confinement, he recovered with an ankylosed joint; at thirty, the ulcer commenced and continued open to the time of admission. The leg was amputated by Dr. S. D. Townsend. Upon examination, almost the whole gastrocnemius muscle was found to have undergone complete fatty degeneration.

Mr. Toynbee has found fatty degeneration of the tensor tympani muscle, even in children, in those cases in which the function of the tympanum was imperfectly performed, from inflammation or any other cause.

The following interesting case of general fatty degeneration of the voluntary muscles was reported to the Royal Medical and Chirurgical Society, Dec. 9, 1851, by Dr. Meryon :—

G. H. P., from the time of birth till four years of age, was perfectly healthy; at this time he began to manifest some weakness of the legs, which continued to increase uninfluenced by remedies; at eleven, he could neither walk nor stand; in a similar manner he lost all muscular power in his arms. At seventeen he was attacked with a simple fever, and died. Previous to examination, the disease was supposed to be in the spinal cord. The limbs appeared remarkably well developed. Upon examination, all the viscera of the head, chest, and abdomen were perfectly healthy, but the muscles throughout the whole body were atrophied, soft, and nearly bloodless, of an ochre colour, and flabby. The microscope showed that they all had undergone fatty degeneration. Two younger brothers began to manifest the same symptoms and condition at the same age; the fourth had not arrived at the age when the others were attacked. There were six daughters in the same family, but none had presented any symptoms of the disease. Dr. Meryon mentions another family of two sons and two daughters, in which the sons were similarly affected, and the daughters escaped. Also a third family, of three sons and one daughter, the sons alone affected. Sir Benjamin Brodie mentions three or four like cases, all which occurred in males.

Dr. Meryon regards the following symptoms as diagnostic of this disease: 1. Absence of all symptoms, indicating active nervous disturbance, as pain in the back and head, rigidity of the trunk, or tremulous motions of the limbs, &c. 2. The very slow and almost imperceptible loss of power. 3. The perfect command over the bladder.

The course of treatment he pursued with his surviving patients, and by which they were improved, was: 1. To supply to the blood those fibrinous elements in which it was deficient; 2. Exciting to action the capillaries of the muscular fibres by exercise; 3. Communicating to the muscles artificial

electric currents. He found the interrupted current more beneficial than the continuous. (*Lancet*, Dec. 20, 1851, p. 588.)

Mr. Hallet (in the April number of the *Edinburgh Medical and Surgical Journal*, for 1849) published an account of a similar case of fatty degeneration of nearly all the voluntary muscles. Of the involuntary, the heart alone was degenerated. The patient, a man, died at the age of seventy-eight.

Fatty degeneration of muscular fibre is not confined to man; it occurs often in the lower animals. If fibres from the breast or wings of fowls are examined under the microscope, some of the fasciculi will be found to have undergone this degeneration. This arises, no doubt, from their want of use. Quekett mentions having observed the same change in the muscles of the legs of ostriches, after being long kept in close confinement; the degenerated fasciculi are whiter than the more healthy. He has also observed the same degeneration in the bones of this animal.

Mr. Kent has reported (in the *Veterinary Record*, for 1847) a case of rupture of the right ventricle of the heart, in a horse, from fatty degeneration.

Adipocire is an instance of fatty transformation of the animal tissues after death. For its production, it is necessary that the tissues be exposed to the action of a certain amount of moisture and kept excluded from the air. Under the microscope, the areolar is the only tissue seen. Numerous instances of the conversion of the human body into adipocire have been published. In one of the burial-grounds of Paris, fifteen hundred bodies were interred in one pit; most of them, by the action of water, were converted into adipocire. Under favourable circumstances, the same change has been noticed in the vaults connected with dissecting-rooms.

Fatty degeneration must be distinguished from fatty accumulation or substitution. Fatty accumulation is a hypertrophy of the normal adipose tissue or fat-cells; it arises from an excess of nutrition; degeneration results from deficient nutrition. Fatty accumulation may, by its bulk, press upon and cause the wasting of the surrounding tissues, and thus be substituted, as it were, for them. Quekett mentions a mutton chop, preserved in the Museum of the Royal College of Surgeons, in which nearly all the muscular substance is replaced by adipose tissue. He also cites the following case, which occurred a year or two since: The leg of a man, aged thirty-five, which had been palsied since he was three years of age, was amputated. Upon examination, only a few fasciculi of voluntary muscular fibre, and those of very small size, could be found, the mass of muscles being replaced with adipose tissue. The few fibres that were found were perfectly healthy, differing in this respect from true fatty degeneration.

Granular degeneration might easily, upon a superficial examination, be mistaken for fatty degeneration. According to Williams, a tissue having undergone granular degeneration presents under the microscope a great increase of aggregated granules, with a corresponding diminution of the proper fibrous

tissue; it is not so opaque, or easily torn, or soft as true fatty degenerated tissue; the granules are not so highly refractive, and no free oil-globules are mingled with them.

Paget, in his Lectures on Nutrition, Hypertrophy, and Atrophy, describes a form of granular degeneration of the muscular fibres of the heart, which appears to be intermediate between the above and true fatty degeneration. The heart has its normal size and form; to the feel it is soft, doughy, and inelastic, can be easily moulded into any shape; in a word, it has the physical appearance of a heart in which decomposition has commenced; it has not the bright ruddy brown colour of a healthy heart, but is of a duller, dirtier, lighter brown, which, in some parts, shades off into a pale fawn colour. If the wall of the left ventricle be partly cut through, the rest is easily torn. The cut surface appears granular. The microscope shows that the primitive fibrillæ are inclined to divide transversely, as in certain fish, rather than longitudinally, as in man. This transverse cleavage gives the torn muscle its granular appearance. Minute oil particles are seen within the sarcolemma of the fibre. In three cases, in which Mr. Paget found this diseased condition of the heart, the death was sudden and not preceded by symptoms referable to the heart. Persons leading a quiet, inactive life, may have this diseased condition of the heart, without its giving rise to any noticeable symptoms, but they would probably quickly succumb to the shock of an accident, a severe operation, or any violent sickness. Does not this diseased condition of the heart account for many cases of sudden death, where a hasty examination has failed to detect disease sufficient to account for death? But future researches will probably reveal that the different forms of granular degeneration, described by Williams and Paget, are simply different stages in the process of true fatty degeneration, probably the commencing and intermediate stages.

The following case, reported (to the Pathological Society of London) by W. F. BARLOW, illustrates this form of granular degeneration; and, as far as one case goes, it shows that granular degeneration is only an antecedent stage of fatty degeneration:—

J. B., cabman—precise age not known, evidently very old; the arcus senilis existed in both eyes, more strongly marked in the left; of temperate and active habits; with the exception of one day, had attended regularly to his duties; muscular system well developed. The manner and suddenness of his death were not known; when seen, the cab was moving along the street, he lying back upon the seat dead; the reins had fallen from his hand. Examination twenty-four hours after death: Body rigid; skull uncommonly thick; arachnoid opaque; brain shrunken; convolutions small; gray matter thin and pale; the fibrous or white part of brain tough; even septum lucidum and olfactory nerves not easily torn; arteries of the brain full of atheromatous patches; the left vertebral artery contained a cylindrical mass of fibrin a third of an inch long—thus diminishing the amount of blood to the brain—at this point the coats of the artery were badly degenerated.

The heart was flabby; did not preserve its rounded form, but lay flattened; had a dingy colour, but not the fawn colour and mottled appearance of fatty

degeneration; the walls were softened, especially those of the left ventricle; the cavities were dilated, also the aorta, which was thickly studded with atheroma; aortic valves were expanded and thin; the coronary arteries were much degenerated, but their caliber was not diminished. The muscular fibres of the heart were easily broken, and in some spots entirely destroyed; viewed under the microscope, the striæ seemed disappearing in numerous places; in others, the fibres remained perfect. The degeneration was most extensive in the left ventricle, but it existed in other parts. The degeneration was mostly granular, but the granules were seen here and there to be undergoing conversion into oil-globules.

Dr. Richard Quain, in an article read before the Medico-Chirurgical Society of London, since published in its *Transactions*, and reported in the various medical journals, specifies two forms in which fat occurs as a disease of the heart, namely: Fatty accumulation and fatty degeneration. He gives a table of 15 cases, in which the growth of the normal fat tissue upon and among the fibres of the heart was so great as to become a disease, that is, to impair the structure and functions of the heart, causing derangement of the circulation. 5 of the 15 cases had suffered from dizziness or coma; 8 from syncope; 9 from shortness of breath and feeble circulation. In all but one, death occurred suddenly. 1 died by coma; 3 by rupture of the heart; and 10 by syncope. This accumulation of normal fat tissue is usually found at the base of the ventricles—along the line that separates them, in the course of the coronary arteries, and on the posterior part of the right ventricle; but occasionally, as in some of the cases reported by Quain, it completely covered the organ externally, and penetrated to a considerable depth between the muscular fibres, and the heart looked as if its walls were made of fat. Dr. Hope mentions a case in which a layer of fat, a quarter of an inch thick, covered the anterior and lower half of the right ventricle. Although in such cases the walls are attenuated, pale, and flabby from pressure, yet the fibres upon examination will be found unchanged in structure. The tendency of this form of fatty heart is to end in dilation of one or more of its cavities. Hope gives three cases in which he suspected fat to be the cause of disease; in only one was he able to verify his suspicion by dissection. The other two presented the same symptoms, namely, enfeebled sounds, especially the first; irregular pulse, without valvular disease; and oppression, or even pain in the praecordial region, with signs of retarded circulation producing cerebral, hepatic, and other congestions.

Dr. T. K. Chambers, in his *Gulstonian Lectures*, has collected the histories of 38 obese persons. From these, it appears that the most common age, at which corpulency begins, is from 18 to 30. In 21 of the 38 cases, it began between these ages. In most of the cases there was an hereditary disposition to corpulency. Sex seemed to exercise no influence, as it occurred in 19 males and the same number of females. Dr. Chambers found partial obesity is very apt to occur about the time of the cessation of the functions of the generative organs, being deposited in the omentum and upon the heart more

commonly than under the subcutaneous tissue. This excessive overloading of the heart with fat occurs occasionally in those with no tendency to corpulence in other parts; but, of course, is much more frequent in those that have the tendency. Out of 36 corpulent persons who died at the St. George's Hospital between 1845 and 1850, the hearts of 12, upon examination, were found loaded with fat. Of 165 persons, not notably fat, who died at this hospital during the same period, of disease of the heart, in only 4 was there much fat deposited on the heart. The tendency to partial deposition of fat at the turn of life increases with the increase of years. Dr. Chambers gives the cause of death in 69 obese persons, as shown by *post-mortem* examinations made at the St. George's Hospital: Of 57 whose hearts were examined, 50 were found diseased, namely, 5 hypertrophied; 8 hypertrophied and dilated; 26 dilated; and 11 atrophied. In 13 of those which were dilated, 2 of those atrophied, and 1 of those hypertrophied and dilated, that is in 16, there was an increased quantity of normal vesicular fat about the base of the heart. Of the 11 cases of atrophy, all that were submitted to the test of the microscope were found to have undergone fatty degeneration.

In the second form of disease of the heart from fat, there is not of necessity any deposit of fat upon the heart or among its fibres; but the muscular tissue is disintegrated into fat granules or molecules—a true process of decay. By accident, Dr. Quain discovered changes produced in the heart of the dead similar to those that often occur in the living, whose vitality is low, circulation feeble, nervous system deranged, and tissues damaged by atrophy. He and others also have since instituted experiments for the conversion of albuminous and fibrinous textures into adipocire; and from chemical and microscopic observation, both of adipocire and degenerated muscle, have concluded that the appearances in the artificial and natural processes are identical. The observations of Quain, Williams, Paget, and Rokitansky, all go to establish the conclusion, that when the vital properties of the protein compounds are impaired, they succumb to the physical forces around them, and assume the more simple forms common to animals, plants, and minerals.

Imperfect nutrition is the first step in the process of fatty degeneration dependent upon original weakness or deficient action of the assimilating organs. In the case of the degenerated heart, it may suffer, in common with other organs of the body, from mal-nutrition; or, locally, from disease of the coronary arteries or the ulterior effects of endo and pericarditis.

The most frequent seat of fatty degeneration of the heart is in the walls of the left ventricle, less often in the septum, sometimes in the right ventricle, and more rarely in the auricle. Out of 68 cases of fatty degeneration of the heart, Dr. Quain found it in connection with hypertrophy in 39 cases. This, he believes, is owing to the less perfect nutrition of hypertrophied hearts. Rokitansky attributes it to disturbance of the balance of the nervous functions. To the same cause, whatever it may be, is due the fatty degeneration of the muscular tissue of hypertrophied bladder, first pointed out by Mr. Han-

cock. In the remaining 29 cases, the heart was either of normal size or diminished.

In consequence of diminished consistency of the walls, rupture occurred in 25 of the 68 cases; in 20 the rupture was complete; in 5, incomplete; being limited to the external, internal surface, or in the substance of the heart, the latter constitutes what has been called cardiac apoplexy. Blood thus effused into the substance of the heart, becoming encysted, and losing its colour, simulates an abscess. Cardiac aneurism may result from fatty degeneration of the walls of the heart.

Coma and even apoplexy result from fatty degeneration of the right ventricle; its weakened walls have not the power to propel the blood onward; its cavities fill, and the circulation is obstructed. Faintness and syncope result from the same condition of the left ventricle. It was present in 15 of Dr. Quain's 68 cases. Syncope in these cases may be only transitory, or it may end in death. In 54 of the 68 cases, death was sudden. Out of these 54 sudden deaths, 21 were by syncope.

From our present knowledge of the symptomatology of this disease, the diagnosis must be more or less conjectural. We have no physical sign or symptom pathognomonic of the change, unless the senile arc prove to be such. The following are the usual signs and symptoms: Feeble impulse of the heart, feeble first sound, extended dulness on percussion, perhaps a murmur with the first sound, or imperfection in the second sound of the heart. The pulse is never strong. Of Dr. Quain's 68 cases, in 13 it was irregular; in 14 weak; in 8 slow; and in a few full, regular, and quick. The countenance is often anxious. Mental irritability usually exists; copious sweats from slight causes; feeling of fatigue from trifling exertion, especially upon going up hill; breathlessness, slight at first, but gradually increasing, till any exertion will induce the most intense suffering. Besides breathlessness; syncope and pain in the region of the heart are frequent symptoms; these three may occur singly or together. Many of these symptoms are the symptoms of angina pectoris, and it is the opinion of both Quain and Ormerod, both of whom have given much attention to this subject, that in fatty degeneration of the heart is found the true explanation of the pathology of angina pectoris in many cases, especially those in which no disease of the structure of the heart was detected; the fatty degeneration of its muscular tissue being overlooked, and the symptoms all attributed to diseased coronary arteries or fat upon the heart. All these symptoms, of course, are more marked when the heart, from some local cause, has become degenerated than when it participates in the degeneration of the whole body, as in old age.

Treatment.—Dr. Quain found the results of treatment more successful than at first might have been supposed. Though we may not be able to restore disintegrated fibres, yet we may prevent the degeneration of those remaining, and render them more effective. To do this, we must improve the condition of the blood; make it richer in fibrin, albumen, and corpuscles, a

better stimulant to the heart. The condition of the digestive organs should be particularly attended to. The use of iron has been found especially advantageous. Paroxysms of dyspnoea and pain are to be relieved by antispasmodics; their recurrence may be prevented by leeches to the region of the heart, followed by counter-irritation. Dr. Quain found narcotics injurious. Excretion and over-exercise should be forbidden. Dr. Kennedy thinks a well-directed system of exercise, active rather than passive, a most valuable means of cure in this disease.

Perhaps the two following cases, reported by Dr. Quain (to the Pathological Society of London), will give a better idea of fatty degeneration of the heart than any summary of its symptoms:—

Lady H., aged 58, on rising from bed, went to the night-chair to empty the bladder, then laid down, and died immediately. From her 51st to 54th years she had three attacks of apoplexy, followed by slight weakness of right upper and lower extremities. After the first attack, she began to complain of shortness of breath upon exertion. About fourteen months before death, she began to suffer most distressing and alarming attacks of dyspnoea; these came on usually about two o'clock in the morning; the extremities and face became cold and livid, pulse feeble and irregular; as the sense of threatening suffocation became less, a severe pain in the praecordia and across the chest came on. The impulse of the heart was weak, the first sound low and prolonged, second sound clear, no murmur, extent of dulness over heart increased. The arcus senilis existed in both eyes. Upon examination, traces of the three attacks of apoplexy were found in the brain; the arteries at the base of the brain were studded with atheromatous or fatty matter. The lungs were healthy. The anterior branch of the left coronary artery was extremely ossified, the right auricle dilated and thickened, the right ventricle thickened, the greatest thickness of left ventricle thirteen lines; the valves were healthy. The septum near the apex and the wall of the left ventricle towards the anterior surface of the heart presented the pale buff colour of fatty degeneration, which passed into, and contrasted with, the healthy flesh colour of other parts of the heart. The microscope revealed the characteristic appearance of fatty degeneration, and, mingled with it, a large amount of fibrous tissue. The liver was enlarged, hard, and granular; kidneys were rough and granular, one enlarged and the other atrophied. Ossification of a branch of the coronary artery, with degeneration of that part of the heart it supplied with blood, clearly points to impaired nutrition as the cause. (Condensed from the *Lancet*, Dec. 14, 1850.)

The subject of the following, a lady of rank, who had, through life, suffered much mental anxiety, died at the age of sixty-eight. For ten years previous, she was nervous, irritable, and often passed sleepless nights; she occasionally had a cough with expectoration, frequently complained of heaviness and oppression in the sternum. She was always complaining, yet never seriously ill. About two years before her death, the pulse was noticed to be irregular and uncertain in action. Two months before death, she complained of numbness of the fingers of the left hand, and of a tingling and uneasy sensation over the surface of the body generally. Within forty hours before death, she had four very severe attacks of pain, which she called "spasms in the stomach;" the first was attended with a rigor and nausea; in the fourth attack, she shrieked loudly, raised herself in bed, or attempted to do so, and died instantly. Upon examination, the pericardium was found filled with blood, a

pint in quantity, partly coagulated, which had escaped from a rupture an inch long in the anterior wall of the left ventricle, parallel to and near the septum. In the ruptured part and near the apex of the heart, the muscular fibre had undergone complete fatty degeneration. In other parts, the muscle was perfectly healthy. That branch of the coronary artery which supplied this circumscribed, degenerated part of the heart, was almost closed by osseous degeneration of its coats. There was but little adipose tissue on the heart, although the body generally abounded with it. The liver was greatly enlarged and fatty; the other organs were healthy. (Condensed from *Lancet*, Dec. 27, for 1851.)

The following case was reported to the Pathological Society of London by Dr. Baly :—

Mrs. M. F.—, aged 52, above medium height, fat, and of a leucophlegmatic temperament, of temperate habits. She had suffered mentally from severe domestic troubles. A little more than three years before her death, she was attacked with paralysis of right arm and leg, with loss of speech; there was neither loss of sensation of the affected side nor of consciousness. She recovered an imperfect use of the palsied muscles. She did not complain of short breath, palpitation, or faintness; but a sense of oppression in the chest, and a frequent desire to draw a longer breath than she could do. Pulse feeble; both impulse and sounds of the heart were feeble. Six days before her death, she complained of pain behind the middle of sternum, which confined her to the bed for three days. The day before her death, she appeared unusually well; the following morning expressed herself as feeling well; while washing herself, she raised her hands and expired instantly.

Upon examination, the basilar artery and the branches forming the sides of the circle of Willis were found opaque, rigid, and contracted. The parts of the brain supplied by these arteries alone presented the appearance of disease. The under surface of the crura cerebri was softened to a pulpy consistence for a line in depth; the left half of the pons varolii was flattened and contracted, and showed a loss of medullary substance, which extended to the medulla oblongata. The pericardium was distended with many ounces of serum, and a dark coagulum, which completely enveloped the heart. The base of the heart and right ventricle was loaded with fat for a space three inches square. The rounded part of the left ventricle was of a mottled dull yellow, or drab and pink colour, with no appearance of fibrous tissue. In the middle of this part, just behind the left convex border of the ventricle, there was a rupture of an inch, commencing half-way from the base to the apex, running towards the apex; nearly on a line, and below this rent, were two much smaller ones. The wall of the left ventricle was of normal thickness, its cavity enlarged, and more nearly globular than usual. It was in the dilated part that the rupture occurred. The mitral valve was thickened and opaque, the aortic were also thickened, and their free action hindered by a bony ring at their attached border. In the coronary arteries were numerous opaque and thickened patches of cartilaginous or fibro-cartilaginous structure. A branch of the left coronary, which ran to the degenerated part, was for three-fourths of an inch much enlarged, thickened, yellow, and rigid, and filled with a firm, dark coagulum, and its canal seemed obliterated at the very margin of the degenerated part. The other parts of the heart were healthy. The arch of the aorta presented many patches of atheromatous degeneration.

Various parts of the heart were subjected to microscopic examination; in

the septum, which appeared to the naked eye most healthy, a fibrilla here and there was seen degenerated; in portions from the right ventricle, which had a soft and unctuous feel, more fibrillæ were found degenerated; and in parts from the side of the rent scarcely a trace of normal muscular tissue could be seen; nearly all the primitive fasciculi had undergone fatty degeneration. The arcus senilis did not exist. (Condensed from *Lancet*, Jan. 31, 1852.)

This case is particularly interesting and instructive. It cannot be doubted, that the disease of the brain and of the heart was dependent upon the disease and obstruction of the arteries, impairing the nutrition of the parts they supplied. In fact, all the changes in the body may be referred to the diseased condition of the bloodvessels.

The yellow, opaque arc, or zone, called *arcus senilis*, often seen in the eyes of the aged, is another instance of fatty degeneration. It is particularly interesting in this connection, as it is supposed, by some, to furnish a diagnostic mark of the same change in the heart. To Mr. Edwin Canton is due the credit of elucidating the pathology of the *arcus senilis*. (The results of his researches are contained in the *Lancet* for May 11, 1850, and for Jan. 11 and 18, 1851.)

The senile arc is produced by a gradual transformation or degeneration of the tissue of the membrana propria of the cornea into fat-globules. From extended observation, Mr. Canton concludes that the senile arc rarely exists in persons under forty years of age. He mentions that he has seen only four exceptions to this rule; one was a sickly girl of sixteen, who had suffered from two attacks of choroiditis in the left eye; in the same eye there existed an arc. According to Mr. Canton's observations the arc rarely exists in one eye alone; where it does, it is owing to some local impairment of nutrition. Fatty degeneration of the ophthalmic artery frequently coexists with the senile arc. Mr. Canton found the upper arc the first to make its appearance. In regard to the senile zone as an index to a similar change in the heart, he makes the following assertion: "I have in no instance found the senile arc, when well developed, unaccompanied by fatty degeneration of the heart. The extent of degeneracy in this organ has appeared to me to bear a relation to the degree to which the cornea was invaded by the deposit." His observations, with the following exception, were confined to those advanced in years, and for a long time inmates of a workhouse: A man, aged 42, died of lumbo-pelvic abscesses; a well-developed senile zone existed in both eyes; *post-mortem* examination proved the coexistence of extensive fatty degeneration of the heart.

Dr. R. Quain mentions the coexistence of fatty degeneration of the heart and of the *arcus senilis*, in a man only twenty-eight years of age. Dr. C. J. B. Williams gives a table of twenty-five cases; in all, there existed the signs and symptoms of fatty degeneration of the heart; all but three were males, of ages varying from 45 to 77. In all but two the senile arc was to be seen more or less distinctly marked. In two cases, he proved the coexistence of these diseases by *post-mortem* examinations. Dr. Quain has the following

more cautious remarks upon this subject : "When the signs and symptoms of fatty degeneration of the heart are present the appearance of the cornea will greatly aid in the diagnosis. It must not, however, be forgotten that fatty degeneration of the heart may occur under circumstances, and at an age when we would not expect to find this lesion of the cornea ; so likewise, but in a much less degree, we may expect to find the change of the cornea independently of change in the heart."

The value of the senile arc as a sign of fatty degeneration in other parts of the body depends upon its symmetrical development in both eyes. When it exists in one alone, it is due to some disease or accident which has impaired the nutrition of that eye alone.

The observations of Dr. E. B. Haskins, of Clarksville, Tenn.¹ are opposed to the conclusions of Mr. Canton. The number of cases is twelve, being all that came under his notice during three months. In his opinion, only two had any symptoms referable to the heart, and in one of these the palpitation was evidently hysterical. One had consumption, one dyspepsia, one paralysis agitans, and one other neuralgia; the other six were healthy. Three were under forty years of age, one was only twenty-seven, and of remarkable health and vigour, the oldest was ninety. Dr. Haskins found that the lower arc began first and was most fully developed.

Mr. Dalrymple states that the microscope reveals many oil-globules, and sometimes plates of cholesterin in the milky liquid of *soft cataract*.

One of the most interesting facts connected with this subject is that brought to light by the researches of Mr. Kilian, and confirmed by the observations of Mr. Rainey; it is this, that the normal process of restoration of the uterus, after parturition, to its ordinary state, is effected by the conversion of the now useless muscular tissue into oil or fat granules.

Mr. Rainey has given (in the January number of *Lancet*, for 1853) the results of the microscopic examination of the uteri of two women; one died three weeks after delivery; the other, aged thirty-six, died four weeks after delivery, of metritis and purulent absorption. Thin sections of the uterus, in both, exhibited unequivocal marks of fatty transformation of the muscular fibres; but it was better marked in the last, as might be expected, as a longer time had elapsed from the confinement of the patient to her death. The opinion of Mr. Rainey is, that this "change is most probably a normal one, and that it occurs in the muscular fibres of the uterus in all cases after delivery."

Fatty degeneration of the placenta should be mentioned in this connection. Dr. Robert Barnes read before the Medico-Chirurgical Society of London, May 13, 1851, a paper on this diseased condition of the Placenta; and its Influence, as a Cause of Abortion, Death of the Foetus, Hemorrhage, and Premature Labour.

In this paper, Dr. Barnes gives two cases of premature delivery, both at

¹ American Journ. Med. Sci. Jan. 1853.

seven months; in the first there was hemorrhage at the third month, and at the time of delivery; in the second there was no hemorrhage. In both, the foetus had been dead some time before labour commenced. Dr. Barnes describes the appearance of the placenta thus: "The uterine surfaces were studded with fatty masses, varying in size from that of a bean to one mass, which was as large as a pigeon's egg." These masses were firm, of a yellowish-white, and bloodless.¹

Dr. Hassall subjected to microscopic examination thin sections of these masses, also parts of the apparently healthy placenta; in the former, the degeneration was found complete; in the latter, it had commenced. The oil-granules were found in the chorion, the walls of the umbilical capillaries, and in the spaces between them. No blood was found in the vessels. Dr. Barnes thinks fatty degeneration of the placenta causes death of the foetus by cutting off its necessary supply of blood. Dr. Barnes claims that, with the exception of a similar case recorded by Professor Kilian, his are the only recognized cases of fatty degeneration of the placenta reported.

Dr. Barnes read before the same Society, Feb. 22, 1853, a farther account of this degeneration. This paper contains the history of several cases observed since the publication of the former one. In the first case, the foetus and placenta were expelled together, between the fifth and sixth months of pregnancy. Though, probably, some time dead, yet there was no sign of decomposition in foetus or placenta. The uterine surface of the placenta resembled the outer surface of the brain, both in colour and in its divisions. There was no trace of healthy placenta. The lobes were of a pale yellow and glistening appearance, the sulci of a pinkish red, and along these lines the placenta drew an imperfect nutrition from the uterus. The degeneration had been gradual; and so completely had it arrested the circulation, that there was no hemorrhage at the time of delivery. The microscope showed that the villi were much changed, the chorion mostly destroyed, and the nuclei in the coats of the capillaries enlarged and loaded with fat-granules.

In four other cases, reported by Dr. Barnes, of premature delivery, the placenta presented the same appearance of fatty degeneration. Delivery took place from the fifth to the eighth month; in each the foetus had been some time dead. In two other cases, the abortion happened in the early months of pregnancy; was attended with some hemorrhage; degeneration of the placenta had not proceeded as far as in the others. In the last case, the child was born at the full time, alive and healthy. Fatty degeneration affected the placenta partially; but this change, probably, commenced near the close of pregnancy, and did not so interfere with the nutrition of the child as to prevent its reaching the full time. Dr. Barnes states, from his observations, that when fatty degeneration of the placenta is met with at the full time, it is usually found in the margin of the placenta, small in amount; not sufficient to change the

¹ Lancet, May 26, 1851.

structure of the tissue, or impede its functions. Dr. Barnes found the villi seldom affected by calcareous degeneration; and, except in very extreme cases, it did not interfere with the functions of the placenta.¹

Dr. Robert Druitt read before the same Society, Jan. 25, 1853, a paper on Degeneration of the Placenta at the end of Pregnancy. The conclusions of Dr. Druitt are drawn from the microscopic examination of thirty placentæ, taken from women whom he had consecutively delivered. In all, he found either earthy or fatty degeneration, to a greater or less extent. He doubts whether a placenta at the full time can be found, free from traces of fatty and earthy degeneration; they may not, and usually are not found together in the same part, and to an equal amount. As the result of his investigations, he draws the following conclusions: 1. That incipient degeneration was a normal condition of the placenta at the end of pregnancy. 2. That it arose from partial cessation of the active functions of the organ, when the foetal development was nearly completed. 3. That when it occurred in the earlier months, it probably arose from some antecedent want of nutritive force in the foetus, or by its death.²

The analogy, that organs which have arrived at the fulness of their growth and the fulfilment of their offices begin to degenerate and give signs of incipient death, like the falling of the leaf in autumn, is hardly applicable to the placenta; for as the foetus increases up to the time of delivery, it of necessity requires an increasing placenta, with the exercise of its full and perfect functions. Numerous and accurate microscopic observations, by capable observers, alone can harmonize the apparently contradictory results of the conclusions of Drs. Barnes and Druitt.

From facts at present in our possession, it is probable that a certain amount of fatty degeneration of the placenta, especially in its margin, can exist near the full term without interfering with its healthful and complete functions. In cases of premature labour, with fatty degeneration of the placenta, in some, this fatty change of the placenta is probably the primary trouble and cause of death of the foetus, and of abortion; in others, this degeneration is the result of atrophy, or death of the ovum.

Fatty Degeneration of the Arteries.—Mr. Gulliver first demonstrated that the atheromatous patches, so often seen in the arterics, especially in the larger ones, consist of fatty matter, formed partly by degeneration of the middle or elastic coat, and partly deposited in granules and oil-globules, with scales of cholesterin, under the lining membrane. The elasticity of the artery being thus destroyed, and its strength impaired, dilation, aneurism, and rupture readily follow.

The fact that apoplexy is, in many cases, the effect of this atheromatous degeneration of the larger cerebral bloodvessels, and not of the congestion and escape of blood from healthy vessels, has been often noticed. Many cases

¹ Lancet, March 5, 1853.

² Ibid. Feb. 12, 1853.

illustrating this connection have been reported. The following case occurred at the Dexter Asylum in this city:—

Wm. B. M., aged sixty, married, of intemperate habits, by occupation a shoemaker, admitted into the asylum August 27, 1851. As he was delirious at the time of his admission, and continued so until his death, no history of the attack, or of his health previous to it, could be obtained. There was perfect paralysis of the left side; head hot; face deeply suffused; pupils natural; extremities inclined to be cold; tongue loaded with a yellowish-white fur; pulse seventy, full and hard. On the 29th, the palsied leg and arm were edematous; tongue dry and brown; pulse small; delirium violent, with extreme restlessness. He died August 30. Upon examination, the coats of the arteries at the base of the brain were found studded with atheromatous patches. The arteries most diseased were the anterior cerebral and communicating. In the anterior lobe of the right hemisphere, near the base, a dark clot was found, and the brain-substance around it much softened; the arteries supplying this part were those most diseased.

Mr. Paget has recently pointed out the important connection of apoplectic seizures with fatty degeneration of the coats of the smaller bloodvessels of the brain. (The eleventh number of *Ranking's Abstract* contains a report of his communication to the Abernethian Society, in which are given the microscopic appearances in the cases illustrating this connection.)

According to Mr. Paget, in the earliest stage of this degeneration, "minute shining, black-edged particles, like molecules of oil, are thinly and irregularly scattered beneath the outer surface" of the capillaries, and of arteries and veins of small size. As the disease advances, the whole surface of the affected vessels becomes thick set with oil particles. The size of these particles also increases; in some vessels the granules are conglomerated into clusters of various shapes and sizes, instead of being uniformly scattered over their surface. Occasionally, the different branches of the same vessel will exhibit all these forms and degrees of change—the thinly and thickly scattered oil molecules, the clustered patches, and "the larger particles like drops of oil."

The structure, and, not unfrequently, the shape of the vessel, undergo a change as the degeneration becomes more developed. The proper fibrous tissue of the vessels wastes, and finally totally disappears. The vessels "appear like tubes of homogeneous pellucid membrane, thick set with fatty particles." Clusters of fat-granules raise the outer coat of the vessel, and give it an uneven and knotted appearance. Sometimes the oil particles are so numerous as to separate the cellular and middle coats for some distance; and occasionally the smaller vessels are dilated into partial pouches.

The smaller arteries and veins are most liable to fatty degeneration; the capillaries are much less frequently affected.

The muscular or transverse fibrous coat is the first and principal seat of this degeneration in arteries; in veins, it is the corresponding layer; in vessels made up of one single membrane, the fatty particles are deposited in its substance. But, in the advanced stage of the disease, all the coats become in-

volved; their proper tissue wastes, and unites into a single membrane, which is filled with the deposit.

Besides the cases of Mr. Paget, Mr. Barlow,¹ Mr. Robert Dunn,² and Dr. Babington,³ have each reported a case of softening of the brain. In all, the microscope revealed far advanced fatty degeneration of the minute cerebral bloodvessels in and near the seat of disease.

The following is a brief abstract of the symptoms and morbid appearances in Dr. Babington's case:—

James N., aged 45, of regular and temperate habits, dark complexion, short and square-built man, general appearance strong and healthy, by occupation a warehouseman; his general health had always been good, had not been subject to headaches, but had had frequent attacks of epistaxis, especially after any violent excitement. All his family are healthy; none, to his knowledge, ever suffered from paralysis. He had lately married a young wife.

A day or two before the attack of hemiplegia, he had pain in the back part of his head. On the day of the attack, he had a severe diarrhoea, which was relieved by two or three doses of brandy and opium. In the evening, while taking tea, he was suddenly seized with complete paralysis of motion of the left side, loss of speech and increase of pain in head, without loss of sensation or of consciousness. In a few hours, he partially recovered from this loss of motion; but on the following morning the paralysis was again complete.

Delirium came on, and he complained of severe pain in the head, also of pain in the palsied side. Upon admission to the hospital, these symptoms continued. The pupils, sight, and muscles of eyes and eyelids were unaffected; sleep natural; appetite good; pulse 72, small, hard, and labouring; mouth drawn towards the right side; left hand and arm little oedematous.

Treatment.—Cupping, mercury, and cathartics. On the 34th day from the attack bronchitis supervened. On the 67th, he died. He was delirious through the whole course of the disease.

Upon examination, the convolutions of the brain were found atrophied; the interspaces filled with clear serum; brain firm; ventricles large and dilated, containing but little fluid; the posterior part of the corpus striatum was found softened, flocculent, and of a yellowish-brown colour; the anterior portion of the thalamus opticus was also slightly affected. The coats of the large and small bloodvessels contained extensive atheromatous deposits; and this was particularly the case with the arteries supplying the softened portions. The right ventricle was loaded with fat; the left ventricle of the heart was hypertrophied, pale in colour, mottled on its inner surface, and its walls had undergone fatty degeneration. The arch of the aorta was dilated and atheromatous throughout its whole extent. The arteries of the body were generally diseased. The kidneys were atrophied, the liver atrophied, and part of it had suffered fatty degeneration.

Dr. Dittrich has observed fatty degeneration of the arteries of the lungs, in cases of pulmonary apoplexy, similar to that described by Mr. Paget, in the arteries of the brain. Dr. Dittrich found, in a large majority of cases of pulmonary apoplexy, this fatty transformation of the coats of the large and small vessels, but more especially of the smallest vessels.

¹ Lancet, May 24, 1851, p. 577.

² Ibid. Oct. 26, 1850, p. 473, and Nov. 2, 1850, p. 499.

³ Ibid. Oct. 30, 1852, p. 400.

Dr. Charles Shearman has observed the same fatty transformation in the substance of a minute vessel of a degenerated heart.

Fatty Degeneration of the Kidney.—Dr. George Johnson claims to have discovered the true pathological change in Bright's disease of the kidney. According to his observations, this change consists in a gradual degeneration of the kidney, beginning with an abnormal deposit of fat-granules in the epithelial, or secretory cells lining the uriniferous tubes, and in the tubes themselves.

Drs. Johnson and Frierichs believe that a small quantity of fat normally exists in the epithelial cells. Dr. Gairdner never has observed it, except the kidney be diseased.

Dr. Johnson explains the atrophy of the kidney, and the presence of albumen in the urine by the mechanical effects of the fatty deposit. As this increases, the circulation through the plexus of veins, that surround the uriniferous tubes, is impeded, and of necessity the capillaries of the Malpighian corpuscles become congested with blood. This congestion of the capillaries is relieved by the serum transuding through their walls, and mingling with the urine, or by rupture of the capillaries, allowing the fibrin and red corpuscles also to mix with the urine. This view makes the congestive stage secondary to that of deposit. Dr. Johnson thinks that upon the greater or less rapidity of the deposition of fat depends the variety of the disease. He also believes the disease to be of constitutional origin, like fatty liver, and to require constitutional rather than local treatment. Dr. Johnson usually found fatty degeneration of the kidney accompanied by the same change in other organs, especially the liver and coats of the arteries. This abnormal deposition of fat-granules in the Malpighian corpuscles, in the uriniferous tubules and in the interstitial substance, between the bloodvessels and secretory apparatus in Bright's disease, had been observed and described by several German and French pathologists, previous to the publication of Dr. Johnson's paper in the *Medico-Chirurgical Transactions* in 1846.

Mr. Toynbee agrees with Dr. Johnson as to the deposition of fat-globules in the secretory cells and in the tubuli uriniferi; but differs from him in regarding congestion as a necessary antecedent to this change.

Gluge, of Brussels, from observations made in 1840, concludes that the phenomena of Bright's disease are produced by different pathological changes in the kidney; the most frequent changes are fatty degeneration and lesions resulting from inflammation. His *Pathological Histology*, recently translated by Leidy, contains a table of 12 cases of disease of the kidney, in most of which albuminous urine was a symptom; in 7 of these cases, the microscope revealed deposition of fat-granules in the tubuli uriniferi and in the interstitial substance of the kidney. In some of the cases, the tubuli were filled with oil-globules; and in one, the Malpighian corpuscles were distended with molecules. Fatty degeneration of the liver coexisted in several cases.

Dr. Williams, in his *Principles of Medicine*, claims to have described this

increase of fat-granules in the kidney before Dr. Johnson even made his researches; but says "I have never seen in the kidney anything at all approaching to the condition of the fat liver, in which both cells and interstitial textures are completely glutted with oil-globules." He found fatty degeneration of the liver, spleen, and other parts of the body coexisting with fatty kidney.

Simon, in his *Lectures on General Pathology*, thinks the opinion that the accumulation of fat-granules in the tubuli uriniferi, as a primary deposit, and as the proximate cause of the serofulous form of Bright's disease, not supported by conclusive evidence. He thinks the deposit of granules is not sufficient to account for the destruction of the tubules and the serous or fibrinous infiltration of the kidney, which, he states, always exists when it is extensively affected with this disease. The tubules of the kidney of the cat, he states, almost invariably, and, he thinks, abnormally contain a large quantity of oil; and though the accumulation is much greater than is ever observed in the human kidney, yet it does not often, if ever, destroy the tubules, or interfere with the function of the organ or health of the animal.

Dr. Frierichs (*Ranking's Abstract*, No. 15) divides the morbid appearances presented by the kidney in Bright's disease into three states: 1. State of hyperæmia. 2. State of exudation and commencing transformation of the exudative matter. 3. State of degeneration and atrophy.

In the first stage or state, the epithelial or secretory cells are not materially affected; but the tubuli uriniferi, especially of the cortical portion, are usually filled with coagulated fibrin. Sometimes, these coagula are simply casts of the tubuli; at other times, epithelial cells, and changed blood-corpuscles are imbedded in them. This state is often attended with effusion of blood from the Malpighian corpuscles or capillary plexus surrounding the tubules. This condition was observed only in violent and rapidly fatal cases. Frierichs gives 20 cases out of 292 deaths from this disease.

In the second stage, the congested condition is less marked, and that of exudation is increased. The fibrinous coagula in the tubuli degenerate into fatty particles. In the Malpighian corpuscles, fibrinous exudation is seen, which also in time degenerates into fat-granules. The epithelium of the tubuli, particularly of the cortical portion, undergoes a complete transformation; its cells lose their proper form, and become more or less infiltrated with fat-granules; thus, it at last loses its characteristic appearance and function, and becomes degenerated into granular detritus and fat. This condition Frierichs observed in 139 out of 292 cases examined.

In the third stage, the kidney becomes atrophied. The degeneration of the coagula in the tubuli and in the Malpighian corpuscles, and the transformation of the epithelium, are completed; their removal causes collapse of the walls of these structures, and atrophy. In a few instances, atrophy was produced by the contraction of plastic matter effused into the interstitial tissue.

Dr. Frierichs mentions apoplexy, suppuration, cystic formations, calculous

deposits, and tubercle, as accidental anatomical changes of the kidney in this disease. He states that in a hundred parts of healthy dried kidney, the fat varies from four and four-tenths to five and five-hundredths. In Bright's disease, it varies from four and four-tenths to thirteen and nine-tenths. Generally, the amount of fat was greatest in the third stage. Chemical analysis reveals less fat than the microscope would lead us to expect; therefore, Dr. Frierichs concludes, we are not justified in naming as fat all those particles which look like it. Dr. Frierichs found the percentage of fat in the kidney of the cat and dog to vary from twenty-seven and two-tenths to thirty-two and five-tenths. The animals were in perfect health, and their urine did not contain any albumen. This last view of the pathology of Bright's disease more satisfactorily explains all the phenomena it presents.

Fatty Degeneration of the Liver.—A liver that has undergone this change is enlarged, paler, softer, and more unctuous in its feel than natural; of low specific gravity (sometimes lighter than water), and greases paper when heated upon it. The hepatic cells, which make up most of the parenchyma of the organ, naturally contain oil-globules. Dr. C. Hanfield Jones, in a very elaborate paper on the *Structure, Functions, and Diseases of the Liver* (read before the Medico-Chirurgical Society of London, and reported in the August No. of the *Lancet* for 1852), states, that he found the quantity of oil in the cells to vary greatly in different classes of animals, and also in the same individual. He believes the hepatic cells contain oil, sugar, and a yellow pigment, but no bile; he found bile only in the ducts; that is, the cells contain the elements of bile, but the combination of these elements, so as to make bile, is effected by the ultimate ends of the bile-ducts.

From microscopic examinations in 1841, Mr. Bowman came to the conclusion that fatty degeneration of the liver depends on a simple increase (but sometimes to a very great extent) of the oil-globules normally existing in the hepatic cells. This theory is taught in the works of Drs. Budd and Williams, and Mr. Simon. But Dr. C. H. Jones holds the opinion that it is not a simple increase of the oil-globules naturally existing in the hepatic cells. He found, upon examining the livers of animals fed on oil, that both the cells and intercellular substance were equally gorged with oil-molecules. But in fatty degeneration of the human liver the oil-globules appeared inclosed in an "indistinct and granular, or semifibrous substance;" but not contained in distinct cells. The liver of an animal fed on oily food to produce fatty liver, contained sugar in the cells; but in true fatty degeneration sugar is not found. Also, in true degeneration of the liver the disease affects only the marginal cells of the lobules, so that each lobule is surrounded by a zone of opaque matter; and these marginal cells are not merely loaded with fat particles, but destroyed. No satisfactory reason is known why the degeneration should be confined to the marginal cells. Dr. Budd states that the quantity of oil in this disease sometimes equals the weight of all the other elements of the liver. Though most frequently met with in cases of consumption, yet it occurs in

other diseases. Dr. Budd mentions meeting with it in two cases of chronic dysentery, also in one of cancer, and cites another case from Cruveilhier. Rokitansky thinks fatty liver belongs to the tubercular diathesis. He has found this condition of the liver in tuberculous disease of the mesentery, lymphatic glands, bone, and of other organs, even when there were no tubercles in the lungs, as well as in consumption. Louis, Budd, and Williams, all agree in its being most frequently met with in females. Louis found the proportion as high as four to one. Fatty degeneration commonly affects the whole liver equally, yet it sometimes affects a very small portion. This, of course, is dependent on some local cause. Dr. Budd met with three cases in one year.

The *gall-bladder* is another organ, in which fatty degeneration sometimes occurs. When thus diseased, its coats present a thickened and opaque appearance, and under the microscope numerous oil-globules and scales of cholesterin are seen. Phosphate of lime is often found with the fat particles, and, sometimes, to such an extent as to form of the bladder almost a bony cyst. In all these respects fatty degeneration of the gall-bladder is analogous to atherosomatous disease of the arteries. This degeneration of the bladder is sometimes complete, at others, only partial. Dr. Budd found it only in the aged, and more frequently in females than in males.

The *spleen* is occasionally found to have undergone fatty degeneration.

Rokitansky states, that "the pancreas is liable to excessive accumulation of fat, which may terminate in the conversion of the entire organ into one mass of fat. When the disease has attained its extreme limit, a mere pulaceous strip of fat, retaining the general outlines of the gland, is found in its place; only scattered remains of the acini are discoverable; and in the delicate and thinned duct there is a whey-like, fatty fluid. The disease occurs frequently in drunkards, associated with fatty liver."

Gluge, in his *Pathological Histology*, describes and figures two cases of partial fatty degeneration of the *pancreas*. He also describes and represents the same change in the tubuli seminiferi of the *testicle* of a dog, whose other organs were healthy.

Dr. Walshe states that the *human testis* is liable to fatty degeneration. Mr. Curling gives a case of atrophied testicle which had undergone this change.

Dr. C. Hanfield Jones (*British and Foreign Medico-Chirurgical Review*, April number, 1853) describes fatty degeneration of the cortical portion of the *suprarenal capsules* as of very frequent occurrence in man, and occasionally met with in animals.

According to the observations of Dr. Jones, the normal atrophy of the thymus gland takes place by accumulation of fat in the interstices of the thymus tissue, destroying it by pressure, as in the disease of the pancreas, described by Rokitansky. But Mr. Simon describes cases of true fatty degeneration of this gland. Dr. Jones gives one instance of fatty degeneration of the *thyroid gland*.

Mollities ossium is, according to the observations of both Paget and Quekett, an instance of fatty degeneration in the osseous tissue. Quekett, from numerous microscopic examinations of bones thus affected, concludes that the diseased process commences in the lacunæ or bone cells, which increase in size by the absorption of the earthy granules from the walls of the cells; the canaliculi disappear, and several cells unite and form a cavity, in which oil-globules are soon deposited. Mr. Paget thinks the fatty matter results "from the conversion of the cartilaginous basis into fat." The walls of bones thus diseased are very brittle, thin, transparent, and so soft as to be easily cut with a knife. Not only the medullary cavity, but all that remains of the cancellated structure of the bone is filled with oil. Mr. Hunter describes bone thus affected, as "resembling a species of fatty tumour, and giving the appearance of spongy bone, deprived of its earth, and soaked in soft fat."

The oil presents various shades of colour, being "bright yellow, pink, and deep crimson."

The quantity of fatty matter found in healthy bone is from two to three per cent. A specimen of bone affected with *mollities ossium*, analyzed by Dr. Garrod, yielded twenty and one-third per cent. of oily matter. Analysis of Lehmann yielded from twenty-nine to thirty-four per cent.

It would appear that two distinct diseases have been described under the name of *mollities ossium*; true fatty degeneration, and simple softening of bones from absorption of the earthy particles, leaving the true cartilaginous basis, which is soft, tough, and flexible, not brittle, as that described above. Cases of simple softening have been described by Rokitansky, Bruce, Jones, and others. They occur most frequently after childbirth.

Mr. Adams, in a communication to the Pathological Society of London (Report for 1848-49), describes fatty degeneration of *cartilage*. According to his observations, the solid contents of the cartilage cells are first converted into very minute spherules of oil; subsequently, these spherules of oil coalesce and form globules of different sizes, which distend the cells; still later, the cell-membrane disappears; and lastly, the intercellular matrix undergoes the same fatty degeneration as the cells. The disease commences on the free surface of articular cartilages.

Causes of Fatty Degeneration.—For the following reasons Mr. Paget concludes that fatty degeneration is a form or manifestation of atrophy, the consummation and result of atrophy: 1. The frequent coincidence of fatty degeneration with emaciation and diminution of size of the part. 2. The existence of fatty degeneration under circumstances which, in other instances, give rise to simple wasting of the same part. 3. The frequent occurrence of fatty degeneration with senile atrophy. 4. The absence of the nucleus (which all physiologists agree is the active agent in the changes which the cell effects) in both atrophy and fatty degeneration. Mr. Paget does not regard the fatty matter, in such cases, as "a new deposit, but as one of the products of the spontaneous transformation of the tissues at the end of their proper periods of

vigorous existence; so that this condition represents the state of a tissue remaining unrepaired, after it has fallen into the ordinary course of degeneration." The fat-granules, in degenerated muscular fibre, are frequently seen arranged in longitudinal or transverse lines, like the healthy elements of the fibrillæ. Under the term atrophy, are comprehended all degrees of impairment of nutrition, from the slightest to the most striking wasting of the tissues, seen in consumption and other chronic diseases. True atrophy occasionally coexists with seeming hypertrophy, as in the hypertrophied heart and bladder, already mentioned, where the microscope revealed fatty degeneration of the fibres. Fatty degeneration being the result of impaired nutrition, its causes will be best learned, as Mr. Barlow has suggested, by considering the conditions admitted to be essential to perfect nutrition, and then looking to the results of the failure of these conditions. Mr. Paget, in his *Physiology*, gives the following as the conditions essential to perfect nutrition: 1. "A right state and composition of the blood. 2. A regular and not far distant supply of such blood. 3. A certain influence of the nervous system. 4. A natural state of the part to be nourished." Fatty degeneration may result from the failure or defect of any one of these conditions.

1. The right state and composition of the blood consists in a certain adaptation between the blood and the tissues, and also each part of every tissue; and upon the maintenance of this perfect adaptation depends the continuance of healthy nutrition. The blood is modified by age, it may be said to grow old. In the aged, we most frequently meet with fatty degeneration of the various tissues. This degeneration, occurring late in life, can hardly be called abnormal more than decay and death in the vegetable world. But degeneration is impatient, and anticipates time. Instances of fatty degeneration have been observed at eight and six years of age; and one case of degeneration of the small cerebral vessels in a child of only nineteen months has been reported. This premature degeneration is often induced and hastened by numerous local and general diseases, in which the blood is impoverished and its composition rendered defective. In anaemia, hemorrhage, Bright's disease, organic disease of the heart, marsh cachexia, and in most chronic diseases, the blood is deficient in the red corpuscles; in Bright's disease, marsh cachexia, cancer, and in the last stage of disease of the heart, the albumen is diminished; and in disease of the heart and chronic scurvy the fibrin is deficient. In lingering and wasting diseases fatty degeneration of a vital organ frequently coexists; a complication full of peril, which should be watched for, and, if possible, detected. During chronic diseases sometimes, upon some slight exertion, a patient turns pale and expires in a moment; the heart is at fault; its fibres are so degenerated they no longer respond to the stimulus of the organic nerves.

A mulatto woman, of about thirty-five years of age, was admitted into the Dexter Asylum in the afternoon; she had been suffering from a severe diarrhoea for some time; during the night, she got up to use the close-stool, and

died instantly. Upon examination, the fibres of the heart were found to have undergone fatty degeneration. It is to be feared that large and frequent losses of blood by the lancet, as well as by disease, have sometimes aided in producing, and often greatly aggravated fatty degeneration when present.

2. A regular and not far distant supply of healthy blood is a condition essential to perfect nutrition. Hence, all general or local obstructions to the circulation must impair nutrition. The supply to any part may be rendered insufficient by obstructions at the inlets and outlets of the heart, acting as partial ligatures on the circulation; by changes in the coats of the arteries, diminishing their caliber; or by clots completely filling them; and by fatty degeneration of the coats of the minute vessels. Whether these local obstructions to the circulation shall result in atrophy, degeneration, or death of the part, depends upon the state of the neighbouring vessels, which may be too degenerated themselves to enlarge and supply the necessary blood. Degeneration of the arteries may be so general as to prohibit the application of a ligature to an aneurismal vessel, especially if there is reason to think the heart fatty or feeble. The comparatively frequent fatty degeneration of the heart has been explained by the want of free anastomosis of the coronary arteries.

3. The question of nervous influence upon nutrition is very complex; but to measure the influence of its derangement or withdrawal, in the production of atrophy and fatty degeneration, and to separate it from other causes acting at the same time is still more difficult, a still more complex problem. But that the brain does have, not only an indirect but also a direct influence on nutrition, is a matter about which there cannot be much doubt. A depressed state of mind interferes indirectly with nutrition by withholding the body from exercise and relaxation, which are necessary to its perfect health; by weakening the heart's action, so the blood is not circulated with the necessary force and frequency; by lessening the amount of air respired, thus rendering the oxygenation of the blood imperfect; by impairing the digestive process, so an imperfect chyle is supplied to the blood; and, frequently, by preventing or disturbing sleep. That the emotions of the mind directly affect nutrition may be inferred from their known influence upon the different secretions in health. Hence it is highly probable, that deranged nervous influence predisposes to degeneration, and aggravates it when it already exists. Cases of softening of the brain have been recorded, which were mainly attributable to grief and mental anxiety. Dr. Quain has reported several cases of fatty degeneration of the heart, in persons who had suffered much from mental anxiety. Three of these cases resulted in rupture. The expression, "died of a broken heart," in these cases was literally true. Drs. Ormerod, Daniell, and others, mention like cases.

Quckett found, from numerous examinations, that simple atrophy, not fatty degeneration, followed the withdrawal of nervous influence in cases of paraplegia from disease or fracture of the spine.

4. The fourth condition necessary to perfect nutrition is a healthy state of the part to be nourished. Each part and tissue has a special life of its own, dependent on the vitality of the whole organism, partaking of its hereditary strength or weakness. Each tissue has its own peculiar and discriminating process of assimilation; it may die prematurely, or remain perfect upon the death of the rest of the body. Assimilation is the formation of new parts, like those already existing; whether the latter be normal or abnormal, the same structure is perpetuated. If a part is healthy, it is likely to remain so; if altered, the alteration is maintained. Thus, the form and size of a cicatrix remain the same for years. But, opposed to this law, there exists in nearly all altered parts, a tendency to regain the normal state, and often, in time, this state is recovered; the scar, as it were, wears out.

A simply atrophied tissue can be restored; but whether a tissue, affected with fatty degeneration, can recover its lost structure is yet an unsettled question. There is some reason to believe it can. Mr. Charles Simpson reports a case in which a well-marked *arcus senilis* disappeared. This is another instance in which the eye affords an opportunity to watch the changes taking place in the body. The fact already mentioned, that the fibres of the uterus, after delivery, undergo fatty degeneration, and new ones are developed when it again resumes its functions, would lead one to think that the process was not one of absolute and irrecoverable destruction. But, even granting that a fibre affected with fatty degeneration is immediately destroyed, degeneration of the remaining may be arrested, and new vigour infused into the organ by enlarging and strengthening the adjoining undestroyed fibres. In the young, the middle-aged, and even in the old, where much uninjured tissue remains, we may reasonably hope to counteract the effects of fatty degeneration by restoring vigour to the surrounding structures. Dr. Quain found very great benefit to follow from proper treatment; greater, of course, in cases of premature decay than in the aged. The length of time the tissues remain perfect in some cases, is not less wonderful than their premature decay in others. Mr. Canton, in his researches with regard to the senile arc, gives the case of a man aged 103. The cornea was free from the arc, and the microscope revealed only a very few fat-granules; in the fibres of the heart, there were only two or three limited spots of fatty degeneration.

It is the vital principle—*ψυχή* of Aristotle—the animating principle of Harvey, the organic force of Müller, and the organic agent of Prout, however vague and imperfect our ideas of this principle are; yet it is this power, or combined power of life, that preserves our bodies in integrity, and prevents those changes which we call *death*.

When fatty degeneration occurs as a general disorder, affecting many organs and tissues, it is most frequently met with in those of feeble circulation and imperfect respiration, in the aged, the cachectic, the habitually intemperate, and especially in the scrofulous. So frequently does the tubercular diathesis associate with itself fatty degeneration of certain organs, that Mr. Simon

believes that some essential relation exists between them. "Degeneration," says Dr. Prout, "appears to be connected with, or to result from, the gradual decay of the vital processes in general, and particularly of the processes of assimilation. It is, therefore, the natural and universal consequence of age; but it may arise in early life from a variety of causes, among which the most frequent are : 1. An inherited and innate weakness of the vital powers, either as they exist in the system generally, or as they exist in particular organs. 2. An acquired weakness of the vital powers in general, or as regards the vital powers of particular organs, produced by a variety of slowly-acting causes; such as long-continued errors in eating and drinking, long exposure to the influence of unhealthy situations, or of occupations unfavourable to the general health.

When fatty degeneration is limited to one organ, or part, it is usually the effect of some previous disease or accident, which prevents a free supply of blood to the organ or part.

All animal substances, whose elements are held together by the feeblest affinities, soon undergo fatty degeneration. Thus lymph, effused into the lungs, liver, kidney, or testicle, in low chronic forms of inflammation, in gangrene; imperfectly organized lymph upon serous membranes; crude and softened tubercular masses; cancerous growths; fibrinous vegetations on the valves of the heart; and pus, all give the clearest evidence, under the microscope, of being principally made up of fat-granules. The artificial formation of adipocire, from nearly all the soft tissues of the body, most clearly shows that the process of fatty degeneration depends upon the prevailing of the *chemical affinities* over the *vital powers*. Whenever and wherever fatty degeneration occurs, it is the result of mal-nutrition, a process of decay, a degradation of the protein compounds to the lowest in the animal and vegetable kingdoms. It enfeebles the vital and physical properties of all the organs and tissues it affects; by it, the muscles lose their contractility, the heart is enfeebled and dilated, and may be ruptured; it injures the elasticity of the arteries, causes aneurisms and their rupture; it clogs the cells, ducts, and vessels of the secretory organs, and thus interferes with, and sometimes completely prevents the performance of their functions.

There are many more important facts connected with this interesting subject, which have been brought to light by the researches of living pathological microscopists, and published in the various medical journals.

Whatever answers future discoveries may return to such questions as the following: Does the process of fatty degeneration consist in a tendency to deposit oil instead of healthy tissue, or does the low vitality of the part only admit of the deposit of fat-granules, as the substance possessing the lowest degree of vitality; whether the fat-granules in the degenerated tissue are capable of farther transformation or removal, or whether this must be considered a final stage in the vital processes of the organism?—whatever solution science may hereafter return to such questions as these, the practical

importance of this subject to the practising physician must ever be great, not only from the number of organs and tissues it affects, but also from the vast number of pathological conditions it alone explains. He must ever be on the alert to detect it; and, where it exists, it must, to a greater or less extent, modify his practice.

Treatment.—From what has already been said upon the causes of fatty degeneration, the course of treatment most likely to stay the progress of the disease, and, if possible, to restore the degenerated tissue, is readily inferred; namely, to sustain the vital powers, and preserve the organic functions in due activity; to improve the condition of the blood, making it rich in highly vitalized fibrin and albumen, by a diet of lean meats, bread, and succulent vegetables, excluding all articles rich in fat, with sparing use of sugar and fermented liquors; to promote free circulation and full respiration, by regular exercise in pure air; to restore healthy action of the skin, by bathing and friction; and to keep up a full and healthy action of the bowels. The tonics, iron, bark, and the mineral acids, especially the nitro-muriatic, have been found to be of decided utility. From the tendency which the fatty matter in degenerations has to assume the solid form, Dr. Williams suggests the use of cod-liver oil as a solvent of the fatty concretions.

ART. III.—*New Mode of Extension in Fractures.* By JOSIAH CROSBY, M. D.,
of Manchester, N. H.

THE great objects to be accomplished in the treatment of fractures—apposition and rest—are well understood by every surgeon; how to accomplish these objects has not been so well settled.

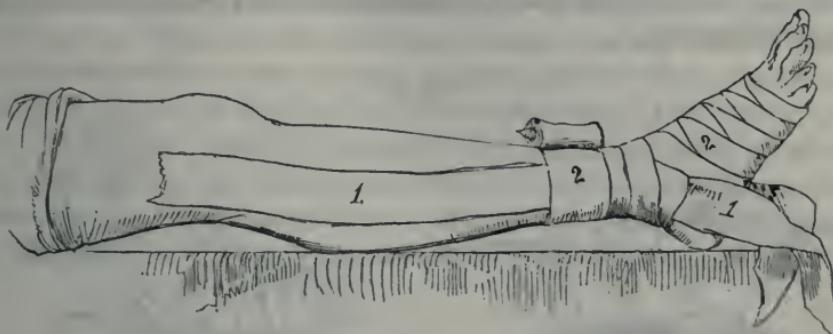
In transverse fractures of the leg there is very little difficulty in the treatment. I shall, therefore, confine my remarks to oblique, compound, and comminuted fractures, and to such of these only as require permanent extension.

A great variety of splints has been invented for the permanent extension of broken legs, many of which would accomplish the object in a very satisfactory manner, but for the great difficulty in attaching the limb to the extending force. The garter, cravat, and shoe, with many others, have been tried, and condemned for producing pain, inflammation, and sloughing. It is to this cause more than to all others we are to look for the shortening and deformity of so many broken legs.

Fig. 1 represents the application of strips of adhesive plaster to the legs by which we attach the limb, in case of fractured thigh, to whatever instrument is used for permanent extension. 1 1 represent strips of cotton cambric spread with common adhesive plaster, to be applied one on each side of the

leg, long enough to extend from above the knee to the ankle, the ends from the ankle hanging loose below the foot several inches, unspread, to be tied to

Fig. 1.



the instrument by which extension is made. These strips should be from two to five inches wide, according to the size of the limb, and should be recently spread. The leg should be shaved before the plasters are applied. 2 represents a roller applied from the toes to the knee, to confine the adhesive strips to the leg, and prevent swelling.

This is the method of applying the extending force, which I used, for the first time, in 1849, and which I have reason to believe had never been suggested to the profession in a manner to attract the attention of surgeons, until it appeared in Prof. Mussey's *Surgical Report* to the American Medical Association, at their session in Cincinnati, in 1850.

By this method, any necessary amount of force may be applied for the purposes of *setting* the bone and keeping the limb sufficiently extended without pain or inconvenience to the patient.

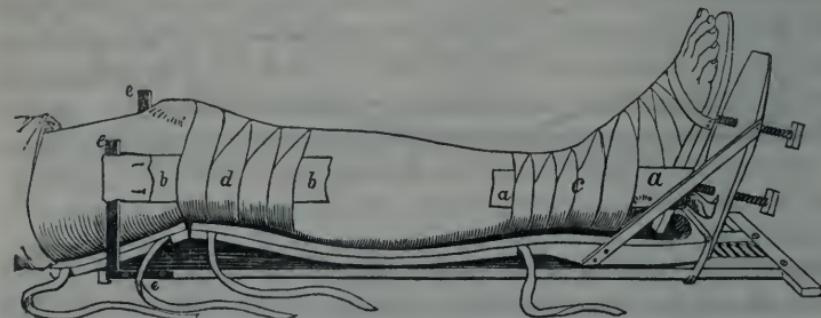
Having found this method of extension so satisfactory to myself in the management of several cases of fracture of the thigh, and from the opinions expressed to me of its superiority over all other methods by Professors Mussey, Parker, Kimball, and Crosby, and also by the distinguished surgeons of the Massachusetts General Hospital, where it was early introduced, I was induced to try it in fractures between the knee and ankle, to produce both extension and counter-extension in all injuries requiring such extension.

Fig. 2 represents Goodwin's splint,¹ with the addition of the irons, *e e*, screwed to the edges of the base of the splint, four or five inches above the knee-joint; *a a* are strips of adhesive plaster applied one to each side of the ankle, higher or lower, according to the location of the fracture; *b b*, adhesive strips running from below the knee upwards, to be passed round the irons *e e*, and pinned below them; *c*, strips to be passed round the foot and ankle, to

¹ Goodwin's splints are now in very general use in this part of the country, and may be obtained by addressing an order to the present proprietor, Henry S. Smith, Ashfield, Mass.

keep the longitudinal strips firmly attached, and to prevent swelling; *d*, strips to pass round the leg below the knee, to fasten the longitudinal strips. The circular strips may be spread with adhesive matter, or not, as may suit the surgeon. I have generally used them spread, as being more certain to hold the extending strips.

Fig. 2.



My method of dressing a fractured leg below the knee, requiring extension, is in the first place to shave the leg, and then apply fresh-spread adhesive plaster, as represented by the plate, then to place on the splint a cushion of some sort, extending from a little below the foot to the knee; on this lay a piece of oiled silk, to keep the cushion from becoming wet; on this place a many-tailed bandage, in strips; having made these preliminary arrangements, and screwed the foot-board as high up as possible, assistants should raise the leg so high that the splint, with all its appendages, can be placed under the limb, letting the foot rest against the footboard; the foot is now to be made fast to the extending apparatus by tying the floating ends of the longitudinal strips to the footboard. The assistant is now to extend the limb upwards on the splint, as far as he can easily, and hold it while the surgeon pins the loose ends of the adhesive strips, above the knee, around the irons *ee*.

The whole thing is now completely under the control of the surgeon; he can extend the limb by turning the screws until it is at its full length. This may be accomplished at once, or he may be several days in doing it. When the limb is extended as much as is desirable for the first dressing, one course of the many-tailed bandage should be folded over it, and kept wet with cold water. The limb should be treated in this way for several days, until the inflammation and swelling have somewhat abated, daily making extension until the limb is at its proper length. When these objects are accomplished, as early as the tenth or twelfth day, if the extension alone be not sufficient to maintain perfect apposition, after applying one course of the many-tailed bandage, as before directed, binders'-board splints may be applied, and secured by the other folds of the bandage.

The advantages of these dressings are, that the surgeon can *set* the leg with much less difficulty to himself, and with much less pain to the patient; that

extension can be more perfectly maintained; that in the inflammatory stage he can dress the limb much more loosely, and can apply his evaporating lotions with better effect; and if the fracture be a compound one, requiring to be dressed daily, it can be done with less danger of deranging the fracture.

It has been objected to this method of dressing, that the adhesive plaster will irritate the skin so that the patient cannot bear it. There may be occasionally a case of this sort, but they must be very rare; I have never seen one. In a case of compound comminuted fracture of both bones of the leg, not more than two inches above the ankle-joint, I kept these dressings applied *without change*, and without irritation, sixty days, and got a sound leg, and of proper length, after the removal of several pieces of bone.

MANCHESTER, N. H., Nov. 2, 1853.

ART. IV.—*Extracts from the Records of the Boston Society for Medical Improvement.* By WM. W. MORLAND, M. D., Secretary.

August 22. *Sunstroke.*—Dr. J. B. S. JACKSON reported the following case: An Irish labourer, 25 years old, was brought into the Massachusetts General Hospital about 4 o'clock P. M. of the 13th of August, in a state of complete coma, being perfectly unconscious. Surface of the body warm; pupils of the eyes much dilated; pulse 120, very full, but readily compressed; breathing almost stertorous. His friends stated that this state had continued for about an hour, and that it supervened suddenly while he was at work in the sun. Slight delirium subsequently manifested itself. Ice was immediately applied to the head and warmth to the feet, and the following enema administered, viz.: Olei tigliai, guttae ij; olei olivæ $\frac{3}{4}$ iss; in a pint of soap-suds. Free alvine evacuation was thus procured, and the patient soon began to show signs of consciousness.

14th. The following draught was given: R. Magnesiæ sulphatis $\frac{3}{4}$ j; tincturæ sennæ compos. $\frac{3}{4}$ j; solve. Free operation from the medicine.

16th. The patient was discharged well.

Dr. Jackson asked if other members had lately seen cases, or would refer to any and to the modes of treatment found most efficacious.

Dr. PARKMAN mentioned the cases related by Andral in his *Clinique Médicale*; the necroscopic appearances are there detailed.

Dr. CABOT said that hot baths and stimulants were found very successful in one of the New York hospitals some years since. Bleeding did not answer in the cases then and there observed.

Dr. BIGELOW, Sen., saw a case on Sunday last—an Irishman. The pulse was small and rapid; and the patient, indeed, seemed moribund when Dr. B. first saw him; and, in fact, soon died. He had been walking for a long time exposed to the direct rays of the sun.

Dr. STRONG, several years since, saw a number of cases. There seem to be *two classes* of cases. In one the prostration of the system is marked and sudden; there is coldness of the surface, and the pulse is low; this state is

succeeded by a hot stage with very strong pulse; then coma and death occur, if there be no remedial interference. In certain cases, the last-named stage is not observed to occur; the patient is as if intoxicated, or as if he had received a severe blow on the head. Dr. S. referred to one case which he saw when the patient was just dying. The body was very hot and the appearance of the patient entirely apoplectic. An emetic had been administered by a physician who first saw the patient; previous to taking this, the patient was entirely rational; afterwards, the apoplectic state rapidly came on.

Dr. COALE related two cases which he observed at sea in a tropical climate. While bringing the ship to anchor under a vertical sun, an old sailor dropped under sunstroke. A great lack of impressibility by remedial measures was remarked in this case. Blisters made no impression; death followed in the course of the day. The next day, a young sailor was stricken down by the same cause. Dr. C. also mentioned the case of a watchmaker, in Boston, who was senseless from sunstroke through an entire day. The pulse very small; being cautiously bled at first, the pulse was found to rise, and then bleeding was practised quite freely, with benefit, recovery ensuing. The patient, however, was obliged to quit his occupation.

The SECRETARY refers, in this connection, to a case where stimulants, internally and externally, were alone serviceable, and, indeed, indicated; the patient, an athletic Irish labourer, having, after being at work in the sun, fallen suddenly and remained a long time in a state of collapse from which he was with difficulty recovered. He is now well, with no noticeable consequent effects.

Ovarian Dropsy.—Dr. HAYWARD, Sen., related the case of a female, 31 years of age. She was tapped for the first time in May last; the quantity of fluid evacuated was enormous, viz.:—

May 19. Forty-five pints.

July 13. Forty-two pints.

August 17. Forty-eight pints.-

September 12. Forty-seven pints.

Total, one hundred and eighty-two pints in less than four months.¹

The consistency of the fluid was that of purulent mucus; each pint weighing exactly one pound; the patient extremely emaciated. Dr. H. remarked that he always tapped patients in the upright position, and he had never known one to faint. The many-tailed bandage is first applied around the abdomen. He mentioned the position, because the *recumbent* posture has been strongly advocated by members of the Society. (Vide *Extracts*, p. 317.)

Dr. C. E. WARE, last February, drew from a patient from fifteen to twenty quarts; afterwards three to four quarts, from time to time, merely to relieve the distension of the abdomen.

Dr. CABOT referred to a case previously reported, in which five gallons, and once nearly six gallons, were drawn off. Dr. C. prefers the recumbent posture as being more comfortable to the patient.

[The sitting position only is directed by Mr. Druitt; but Mr. Fergusson, after describing the operation done in that posture, says: "Instead of having the patient seated, it answers very well to keep him in bed, with the abdomen

¹ Since the case was reported to the Society, the patient has been tapped three times. Dr. Hayward, Sen., drew off forty-four pints on the 3d of October; Dr. Geo. Hayward, Jr., forty-three pints on the 19th of October; and forty-five pints were taken away on the 4th of November by Dr. Hayward, Sen.

projecting over the margin. There are thus less fatigue and less chance of fainting, and I have often operated in this way without using a binder at all." (*Practical Surgery*, Eng. edit. pp. 573-4.)

MM. Malgaigne and Sédillot prefer the recumbent posture.—SECRETARY.]

September 12. Acute Pneumonia.—Dr. J. B. S. JACKSON reported a hospital case of the above disease. The patient was a female, 19 years of age, a tailoress; healthy previous to the pneumonic attack, with the exception of slight amenorrhœa. She entered the Massachusetts General Hospital on the 31st of August last. Four days previous to that date, she was out in a storm and her feet became very wet. She took cold, and awoke next morning with severe general pains, which have continued since, with slight cough. She is very weak, fainting on any attempt to rise; pulse 84; tongue coated in the centre, clean on tip and edges.

1st. Complains of pain in the left back and chest; there is rude, but deficient, respiratory sound over the left back. A sinapism was applied to the seat of pain: R. Pulveris ipecacuanhæ, pulveris opii, $\text{æ} \text{ gr. } \frac{1}{2}$; quartâ quaque horâ.

2d. The last night restless; expectoration of about $\frac{3}{4}$ ss of very adhesive, rusty sputa; respiration 44 *per minute*, laboured; pulse 120; complains of pain in left chest on coughing. Dulness on percussion over left back; respiration scarcely heard in lower left lung; strongly bronchial in middle of left back. Examination of the chest impossible, yesterday, on account of patient's inability to sit up. Add to each dose of previously ordered medicine hydrargyri chloridi mitis, gr. $\frac{1}{2}$.

3d. Much dyspnoea and distress; profuse perspiration; pulse 140; sputa less adhesive, more sanguineous; extensive crepitous râle over the left back, not observed last evening. Omit present medicine. R. Pulveris ipecac. et opii, gr. v; quartâ quaque horâ.

4th. Much confused during the night; now, countenance very sallow; expression distressed; pulse 120; tongue covered with a whitish coat; cough diminished; one free bilious dejection.

5th. Night more comfortably passed; now (A. M.), respiration less laboured; expression of countenance better; pulse 110; four liquid bilious dejections.

6th. Still much dyspnoea; skin much more yellow. R. Pilul. hydrarg. gr. v; and repeat, horâ somni, if no dejection previously.

7th. More comfortable; pulse 72; expectoration about $\frac{3}{4}$ vj, rather viscid, mucous, and almost colourless.

The patient continued to improve till October 14, when she was discharged well.

Dr. Jackson remarked that he had noticed yellowness of the skin accompanying pneumonia of the right side, but never, before, that of the left.

Imperforate Anus.—Dr. TOWNSEND, Sen., saw at the Massachusetts General Hospital a child, born on Sunday (a week ago yesterday), with imperforate anus. No operation was permitted on it at that time. It was seen again on the Thursday following. A little meconium had then passed through a small pin-hole aperture. A probe was passed in, and the opening freely dilated, the rectum being found free. The child did well.

Death from Hemorrhage from Division of the Frænum Linguæ.—Dr. TOWNSEND, Sen., was called to see a child, in consultation, upon whom the

operation for dividing the frenum linguæ had been done. The resulting hemorrhage could not be controlled. All sorts of styptics were tried; the ligature and the actual cautery were unavailing. The child died after lingering some days. It was very healthy at birth.

Dr. STORER asked how frequently this operation is really necessary. He had done it but three times, and then *at the urgent request of the parents only.*

Dr. TOWNSEND considered it very rarely required.

Dr. PARKMAN had done it once, and the necessity was apparent.

Dr. COALE had operated in four cases; in one case, the tongue could not be protruded beyond the gums.

Dr. CABOT had operated once. The child was quite advanced for such an operation. Articulation was impeded by the tongue-tied condition, and the operation remedied the trouble.

[Mr. Fergusson (*Practical Surgery*) fixes the extent for necessary division in tongue-tie, at one-eighth of an inch, and says, "there is no necessity for approaching the tongue, so as in any way to endanger either the ranine veins or arteries." —*SECRETARY.*]

Pulmonary Disease (Gangrene) complicated with Dysentery. Reported by Dr. STORER.—The patient, a German, 48 years of age, entered the Massachusetts General Hospital, July 25. He had been perfectly well until five weeks previously; was then obliged to give up work by a sudden attack of prostration of strength, and cough. Cough had increased, accompanied by very fetid purulent expectoration; no appetite; great thirst; foul breath.

26th. On examination of back, dulness on percussion over left scapula, with very deficient respiration.

27th. Fluid expectorated since yesterday, in all, about $\frac{3}{4}$ oz. of mucopurulent matter.

August 3. Cough still harassing; matter raised during last twenty-four hours, about $\frac{3}{4}$ oz. of purulent mucus, less offensive than heretofore.

4th. Expectoration tinged with blood. On examination of chest, flatness and absence of respiration over entire left scapula; expiratory sound quite marked over right back between spine of scapula and spinal column.

6th. Matter expectorated less in quantity, having some alkaline odour, nummulated.

7th. Expectoration has lost the distinct character of yesterday.

10th. Cough much diminished. Six bilious dejections.

15th. Cough aggravated. Matter expectorated during previous night, at least $\frac{3}{4}$ oz., purulent, exceedingly offensive.

28th. Cough diminishing.

29th. Expectoration less than at any previous visit; not two ounces; very adhesive; somewhat sanguineous. Diarrhoea, which has existed for several days, now urgent. Pain in abdomen upon pressure being made.

September 1. Very languid. Countenance haggard. Expectoration less than an ounce.

2d. Eight or ten dejections, he says, watery. Since P. M. yesterday, four or five dejections, with tenesmus, bilious, with some half-formed scybalæ, a small quantity of mucus, and a few traces of blood.

After this period until his death, which occurred on the 9th, no record was made of his *thoracic disease*. His cough had almost entirely ceased. On examining, but a single sputum was observed in his vessel, being all he had

raised during the twenty-four previous hours. The dysentery in his exhausted condition demanding our whole care, and defying all our efforts to relieve.

At his *post-mortem* examination, the left lung was found adhering firmly to the walls of the chest, and in the front part of the upper lobe was found a cavity containing a large quantity of exceedingly offensive pus. No slough was found. There were throughout this lobe much softened tubercular matter and pus, but no other abscess. The rest of the lung was healthy, as was also the right, except a few tubercular masses at the apex.

September 26. Unusual Physical Signs in Phthisis.—Dr. JACKSON showed the lungs from a hospital patient; the right weighed over four pounds, contained several abscesses of the size of an English walnut, and was perfectly consolidated by tubercular deposits and a pneumonic condition of the intervening structure; the lower half being as much, but not more, affected than the upper. Universal pleural adhesions existed over this side, close and generally rather strong. The patient was a man, 26 years of age, and for three months he had had essentially the symptoms of phthisis; reported at the end of five weeks that he could walk two or three miles without fatigue, and did not keep his bed wholly until the last two weeks, when he failed rapidly, and expectorated large quantities of puriform matter; the expectoration previously having been very moderate in amount.

When first seen, in the fifth week of his disease, July 26, the signs were those of pneumonia of the right lower lobe, posteriorly; crepitous râle; bronchial respiration and bronchophony in the root of the lung; dulness on percussion; otherwise well over this side, except that the respiration was rather diminished. From this time, the signs of disease were developed, and extended most remarkably. On the 28th, there was dulness below the clavicle. August 1. All the signs over the lower lobe were much increased; and, in addition, there was a most marked ægophony. This last was undoubtedly owing to the pleurisy that must have existed, and some of the other signs may have been modified by it; yet it did not exist at first; and it may be remarked, in regard to the symptoms, that there was never, throughout the whole course of the disease, any pain in the right side even on full inspiration. On the 19th, the râle had extended over the whole side, and about the angle of the scapula it amounted to gurgling, with an intensely bronchial or cavernous respiration in this last part; the dulness on percussion, meanwhile, had much increased. On the 29th, the respiration was somewhat bronchial below the clavicle, and on the 1st of September strongly so. 16th. Perfectly flat over whole of right front, with gurgling below the clavicle; and thus the physical signs continued, having commenced in the lower back part, and gradually extended over the whole of the right side.

In the left lung, there was an abundant tubercular deposit in the upper lobe, and more or less in the base, with a few small abscesses; there were also pretty extensive pleural adhesions. Yet no physical signs were ever discovered, though a full examination was often made, as it was presumed that some disease must exist upon this side when there was so much upon the other. The freedom with which this side moved in inspiration, as compared with the right, was quite remarkable.

Another point of interest in this case was the existence of very extensive ulceration of Peyer's glands, the bowels having been perfectly well until the last few days.

Hard Lenticular Cataract.—Dr. WILLIAMS showed the specimen which

he had removed by extraction, yesterday, from a patient 80 years of age. It had been preserved in glycerine, and the amber colour of the nucleus, usually observed in this form of cataract, is well shown.

Hydrophobia.—Dr. HAYWARD, Sen., related the case. The disease was manifested in a boy of 7 years, who was bitten, on the 13th of August, at the angle of the eye, and on the lid, and likewise near the mouth, by a dog. The wounds were thoroughly sucked by a physician who was called in, and then very freely cauterized with nitrate of silver. The boy continued well for exactly one month, when hydrophobic symptoms declared themselves, commencing with soreness in the scars of the wounds, noticed first on the 11th of September, and going on in the usual course of such cases to a fatal termination. The pulse, at one time, rose to 120 a minute; the respiration about 40 per minute; trials, resolutely made by the patient to drink, were stopped by convulsive spasm of the glottis, &c. &c. Bread moistened with water could not be eaten.

Dr. H. tried the experiment of taking the boy to a window, rain falling heavily at the time; the pouring of water, *thus*, externally, did not affect the patient; but when poured into a vessel near him, he was convulsed. A current of air likewise affected him, especially if the air were cool. All treatment was unavailing. Leeches to base of skull; assafetida injections, and subsequently nourishing ones, were administered.

[It was remarked that the sound of the pouring rain did not affect the patient because it did not *immediately* relate to him. Water, more visible to him, either when poured or handed for trial of swallowing, would of course be more potent in arousing spasmodic action, being more direct in presentation, and therefore more appreciable. Dr. MARSHALL HALL, in speaking of the treatment of hydrophobia lately, declared his belief in the curative action of tracheotomy in the disease, which operation, it is now well known, he so strongly advocates in epilepsy.—SECRETARY.]

Pediculi upon the Head and Eyelashes.—Dr. COALE had discovered these insects in the above localities upon a child 5 years old. A microscopical examination of them was made by Dr. DURKEE, who decided that they were the *pediculi pubis*. A case was referred to by Dr. D. as having occurred in England, and which was duly recorded, and in which instance the patient, a female, was troubled by the parasites issuing, *apparently*, from the various outlets of the body, *e. g.* the mouth, eyes, vagina, &c. They were often felt in the throat. Dr. D. gave the case as reported in Denny's *Monographia Anoplurorum Britanniae*.

Dr. BIGELOW, Sen., doubted the possibility of such issue from the outlets of the body; the parasite is not one of the inmates of the hollow viscera, and cannot exist, indeed, within them.

Dr. BURNETT remarked that these insects breathe by stigmata; if these be closed by oil, mucus, &c., the creature would necessarily die. This is true of the flea. The pediculus pubis, Dr. B. added, is now known as the *phthirius inguinalis*.

October 10. Calcareous Deposit upon Placenta—Uterine Hemorrhage.—Case reported by Dr. STORER.

On the 27th ult., Mrs. M., aged 23, was confined, after a labour of twenty-four hours, with her first child. Immediately upon her delivery hemorrhage

commenced. Upon feeling for the placenta, it was found to be firmly adherent throughout a considerable portion of its extent. With much effort, it was separated; and, upon being examined, was found to be extensively covered with calcareous spicula. The hemorrhage continued to a fearful degree for a considerable length of time, and the patient was in imminent danger for a couple of hours. Great difficulty was experienced in producing regular uterine contractions; the portion to which the placenta had been attached seemed to have lost its contractile power—so that instead of the globular tumour usually observed after delivery, an irregular oblong body existed. External friction and the exhibition of laudanum and brandy, and ergot freely exhibited, finally accomplished the wished-for result.

Gutta Percha Bougie broken off in the Urethra.—Dr. J. MASON WARREN said that he mentioned the case for the benefit of his professional brethren.

A young man applied to him suffering under an obstruction in his urine, for which he had been subjected to much treatment without relief. He had contracted a gonorrhœa nine months before, and had a mucous discharge since. The symptoms indicating stricture, he was advised to have the urethra explored. A small wax bougie was first selected from a bundle, but rejected from being a little injured. The next that offered was one of gutta percha, and being of the requisite size, was softened in the hand, and passed up readily to the prostatic portion of the urethra. Meeting here with some obstruction, it was withdrawn, the point a little softened and bent, and it then went easily into the bladder without the use of any force. On taking hold of the instrument to withdraw it after it had remained a minute or two in *situ*, it broke off short at the orifice of the urethra, or rather dropped off as if it had already been detached, from the effects of a change of temperature, as not the least violence was applied to it. Dr. W. requested the patient to stand perfectly still, not having any question at the time but that with a forceps it could be seized, and readily withdrawn. This at once was found impracticable. It seemed to retract, and bury itself in the anterior wall of the urethra, and any attempt at seizing it only resulted in the laceration of the lining membrane. Various instruments were tried, which he had generally employed in withdrawing foreign substances, but from the peculiarly soft nature of the material in the present instance, and its small size, it could not be detected or seized. Efforts were made, by passing the finger into the rectum and by manipulation on the external part of the urethra, to force the instrument forwards, but from the reasons mentioned above, viz. its softness, small size, and its not distending the canal so as to make itself evident there, nothing could be effected in this way. The patient was sent to the hospital, and seen there by Dr. Parkman in consultation, and as it was found practicable to pass a catheter by the side of the bougie, and free the bladder, it was concluded not to cut down for the purpose of removing it, but to leave the case for the present, so long as the symptoms were not urgent, and see what nature would effect. He was ordered a warm bath, and confined to his bed, on a liquid diet. The day following, he was free from pain, and had passed water while in the bath. On the third day, he observed a hard substance, through the walls of the urethra, making its way towards the orifice; this he assisted a little, and extracted a bit of bougie an inch in length, very brittle, and shrivelled up. On the fifth day, a still larger piece was passed, and on the sixth the remainder of the instrument, making in all about seven inches. He suffered very little from the presence of the foreign substance, his principal complaint being the soreness of the urethra near the meatus, caused by the attempts made to

extract it; which, however, had been conducted with the utmost care, and soon discontinued, as they were found to be useless. The patient is now well, and completely relieved from his previous troublesome disease.

Dr. W. said that he had often used the gutta percha bougies for taking impressions of strictures, and, until the present case, had never experienced any accident from them. In order to be employed with safety, they should be made fresh when required for use, as they become extremely brittle on exposure for any length of time to the air.

At the next subsequent meeting of the Society, Dr. GOULD reported the following somewhat similar case:—

A gentleman, at a distance of about ninety miles from the city, broke off about an inch and a half of bougie in his urethra. As the physician of the place had no instruments adapted to the case, the gentleman took the cars for the city, and came to Dr. G. with a request that he would direct him to some surgeon supplied with suitable instruments. On examination, Dr. G. could feel the fragment, partly in the membranous portion of the urethra, and by pressure behind it succeeded in dislodging it, and by pushing it before the finger brought it out of the urethra. It was a very simple and obvious method when once thought of, and in this instance succeeded perfectly.

Large Tumour of the Arm.—Dr. J. MASON WARREN related the case.

The patient, 75 years old, stated that, twenty years before, her husband, while in a state of insanity, threw at her a cannon-ball which hit her on the arm near the axilla. Shortly afterwards, the tumour began to make its appearance, and increased until it arrived at its present enormous size. It appears to be of a fibro-cellular character, and of about twenty pounds' weight, hanging down so that, when the arm is held at a right angle with the body, it rests on the seat on which she sits, dragging down the integuments and other structures in its vicinity. Very large vessels enter it from the axilla, and can be distinguished pulsating in its substance. The tumour is carried by the patient in a large sleeve, and when first seen by Dr. W., it had an ulceration on the surface, caused by being projected from her sleeve on to the grate, while she was in the act of throwing coals on to the fire. She had a second tumour, apparently of a similar description, on her face. Dr. W. showed a very striking daguerreotype of the patient and tumour.

Sudden Death after Delivery—Disease of the Heart, &c.—Dr. C. E. WARE reported a case of sudden death immediately after parturition. The subject was a woman 28 years of age. She was taken in labour at the full time, at about 9 or 10 o'clock in the morning, having enjoyed good health during her pregnancy and during her previous life. She was said by her friends to have been subject to dyspnoea and sudden paroxysms of coughing on any unusual exertion or effort of walking. Her labour went on regularly, without anything untoward except that, when the labour became very active, and the head of the child approached the perineum, she complained of a great deal of distress at the epigastrium and of a suffocative feeling, accompanied by a short cough, and expectoration of a white, frothy, serous-looking fluid. When the head was pressing upon the perineum, a few minutes before the birth, during the last pains, her mind began to wander; she neglected to make any effort, and the child was born spontaneously, so far as she was concerned, and apparently without her consciousness. The after-birth followed immediately, and there was no flowing of consequence. Mania commenced immediately; she at first screamed and talked, and soon tossed about. She would take nothing,

and appeared to recognize no one. The child was born at 7 P. M. She continued unmanageable, and became more and more violent until about half past eight. Her expectoration as copious and of the same character, excepting that it began to have a pinkish tinge. Her pulse was regular, of good strength and caliber. At about half past eight, she suddenly raised herself in bed, gave a shriek, and fell back dead.

At the *post-mortem*, only the chest was allowed to be opened. Great general rigidity. In the right pleural cavity about half a pint of fluid. Right lung very oedematous. Left lung everywhere adherent, with great opacity, and thickening of the cellular tissues about the pericardium. About a gill of fluid in the pericardium, which was not adherent. Heart of about the normal size and texture. The mitral and semilunar valves on the left side greatly thickened and adherent, and the orifices so contracted that neither would more than admit the little finger. The right side of the heart was normal.

Dr. Ware alluded, in connection with this case, to another which he reported to the Society some time since, of sudden death from a similar cause. A young woman, who had never presented any very marked symptoms of cardiac disease, was suddenly seized, after a scene of some excitement, with dyspnoea, cough, copious fluid expectoration slightly tinged, and died in about five hours. The same disease of the mitral and aortal valves was found. Dr. Ware considered the expectoration very characteristic of the disease : he had never seen it in any other disease. It was poured out with such copiousness as to be almost a source of suffocation by itself, as in cases of excessive and rapid haemoptysis.

October 24. Disease of the Hip-Joint, with Caries of the Ilium and of the Horizontal Portion of the Pubis.—Dr. J. B. ALLEY reported the case.

The patient, a man 48 years of age, had at the age of 10 years a disease of the hip, which terminated in shortening of the limb. At 34 years of age, a large abscess formed on the outside of the left thigh. The attending physician recommended opening the abscess, but the patient demurred, and placed himself under the care of an irregular practitioner, who bled him largely, and gave him calomel until he was thoroughly salivated. After this treatment, the swelling disappeared, and he was not troubled again for three years. During the past ten years has had occasional attacks of pain and tenderness in the joint. The patient came under Dr. A.'s care about one year ago. At that time, he was suffering from the presence of a large tumour, which appeared on the inside of the left thigh. Before this suppurred, another and much larger tumour appeared on the outside of the thigh, extending from the hip two-thirds of the distance to the knee. In the course of a short time, this abscess opened of itself, and discharged a large quantity of matter. This was soon followed by a discharge from the one on the inside, and also a small opening immediately over the sacrum. The patient's strength began to fail, symptoms of hectic appeared, but were successfully combated by tonics and a generous diet, and for nine months the patient rallied, and at times recovered sufficient strength to walk out and attend to his business, which was that of a broker. This state of things did not long continue. The patient became more emaciated, and less able to bear fatigue ; and about three months previous to his death, an abscess formed in the perineum, and discharged freely. From that period until his death, he suffered much at times, but was able to move about the house and occasionally to walk out. Still, it was evident that the disease was gaining ground ; his sleep was now disturbed, his appetite failed, and he

gradually sunk away until his death, which took place quite suddenly at the last, he having appeared, the night before his death, as well as he had for some weeks previous.

Post-mortem examination twenty-four hours after death.—Body much emaciated; left leg about three inches shorter than the right; and three fistulous openings leading towards the hip-joint.

The pleurae were found partially adherent, and there were tuberculous cavities in the lungs, but not of any great extent.

All the other organs were normal except the spleen, which was much enlarged. On opening the hip-joint, the head of the femur was found to have been entirely absorbed, and there was a perforation of the acetabulum, through to the inner surface of the ilium, so that the finger could be passed into the pelvis. There was also caries of the horizontal portion of the pubis.

Dr. MARCH, of New York, in a paper read before the American Medical Association in May, 1853, on *Disease of the Hip-Joint*, considers "hip disease as produced in the head of the bone by upward and inward pressure, from muscular action, against the acetabulum." We think the case corroborates the opinion of Dr. March, as we find the os femoris entirely absorbed, and the acetabulum perforated through to the inner surface of the ilium. The primary symptoms of disease, in the case above mentioned, supervened upon excessive muscular action. The patient, when a boy, was in the habit of leaping and running to so great a degree, that he attributed the whole disease to over-exertion during his youth.

It occurs to us, in reviewing this case, that the most suitable treatment, in the earliest stage of disease of the hip-joint, would be gentle traction, sufficient to draw the head of the bone from the inflamed surface of the acetabulum. This treatment, accompanied by absolute rest of the patient in a horizontal posture, might prevent the shortening of the limb and the extension of the disease.

November 14. Post-mortem Appearances presented in a Case of alleged Destitution and Starvation, with a Description of an Anomalous Arrangement of a Portion of the Abdominal Viscera.—DR. STEDMAN read the account to the Society. Examination of the body of John Fleming, made August 26, 1853, at 4 o'clock P. M., by direction of Coroner CHAS. SMITH.

Externally.—Weight of the body, sixty-two pounds; height, five feet two inches; circumference of leg at thickest part, six inches; circumference of thigh, four inches; from Poupart's ligament, seven and a half inches; circumference of arm at the thickest part, four and three-quarter inches.

Both legs drawn up by contraction of tendons and fascia.

Body very much emaciated; bones everywhere prominent; abdomen and intercostal spaces green from incipient putrefaction; skin peculiarly dry and soft; face shrunken; mouth and eyelids wide open; eyes sunken; broad superficial ulceration over sacrum; skin of heels soft and loose; well-defined spots, resembling purpura in size and colour, about the ankles; beard and hair on pubes as in adult age.

Internally.—Mucous membrane of mouth colourless, except a deep blue line next the teeth. Omentum destitute of fat, and adherent to a sac, hereafter described. Intestines transparent, so much so that the colour and motion of fluids therein are clearly perceptible; they are also of a pale-bluish colour. Small intestines glued together throughout their whole extent, and contained within a sac which is formed by a continuation of the mesocolon over the whole of the small intestines, and attached to the spine on both sides, about

the last lumbar vertebra. This sac is granular on each surface, exhibiting traces of chronic inflammation. The peritoneum of other portions of the abdomen natural; glands of mesentery and mesocolon enlarged. Peyer's patches ulcerated generally; gall-bladder nearly empty; duodenum unusually distended and pale; stomach distended with air, and containing about three ounces of liquid food—its walls very thin and transparent. Pancreas atrophied; urinary bladder moderately distended with urine.

Pleuræ of both lungs firmly adherent to the ribs. Left lung filled with tuberculous matter, and impermeable to the air. Right lung crepitant, but containing considerable tuberculous deposit.

Heart flabby, pale, fatless, contains no coagula, otherwise healthy.

Serum effused under dura mater in small quantity; substance of brain very soft and without odour; white portion of a pinkish colour; cineritious portion paler than usual.

Muscles small generally, muscular fibre unusually pale and soft.

No fat discernible, in the smallest quantity, in any portion of the body.

Blood deficient in quantity, and of a lighter colour, and thinner than usual.

All the other organs of the body examined and found healthy.

Opinion.—The testimony elicited at the coroner's inquest, together with the appearances presented at the *post-mortem* examination, lead us to the opinion, that the diseased condition of the pleuræ, lungs, and peritoneum were sufficient to destroy life; but that the sufferings of the deceased were aggravated, and his death was hastened by the deprivation of food and proper care.

C. H. STEDMAN, M. D. }
F. S. AINSWORTH, M. D. } Examining Surgeons.

The following account of the anomalous distribution of some of the abdominal viscera, in the case of John Fleming, is in addition to the above notes taken at the autopsy; the attention of the examiners having been at that time necessarily directed to the interesting medico-legal points of the case, and the account made of them having been intended for the use of the coroner. These peculiarities, it is believed, are without precedent, and are deserving a more extended description than was given in the foregoing report.

On laying open the abdomen, we were struck with the apparent absence of the small intestines. The viscera which were to be seen, were distributed as follows: above, on the right side, the liver, of natural size and colour; in front, extending to the left hypochondriac region, the stomach, somewhat distended with flatus; and immediately below it the transverse colon in its normal condition; the omentum was very much attenuated, extending only about three inches from the arch of the colon. On the right side, from the iliac fossa, the head of the colon, and the ascending portion of that viscus, and on the left the descending, with the sigmoid flexure, occupied their normal position. The hypogastrium was filled by the bladder, moderately distended with urine, and the rectum. On laying the omentum back over the stomach, we found the entire space usually occupied by the small intestines, extending from the ascending across to the descending colon, and from the transverse portion of that intestine to the brim of the pelvis, entirely occupied by an evenly-rounded elastic tumour, projecting out nearly to the level of the large intestine, which bounded it. The surface of the tumour was rough and granulated. Along its upper border it was identified with the transverse mesocolon; and with it could be traced over that portion of the large intes-

tine. On either side, it could be traced to the ascending and descending colon; and was clearly continuous with the peritoneal covering of that part of the intestine. Its lower border was loosely attached to the spine, at the last lumbar vertebra, from whence it was reflected to form the meso-rectum. On cutting transversely across this tumour, the whole body of small intestines was brought into view, compressed into a small compass, and looking not unlike the superior surface of the cerebrum with its convolutions. They were loosely adherent to each other by the effusion of lymph on their peritoneal surface. Their caliber was considerably diminished, though there was no appearance of stricture in any part. On passing the hand through the opening made in the sac, and sliding it upward, it passed, without encountering any obstruction, under the transverse colon, into the cavity bounded above by the stomach, below by the transverse colon, in front by the first and second layers of peritoneum passing from the stomach to the arch of the colon to form the omentum, and behind by the spine and large bloodvessels. The mesentery was adherent to the spine rather higher up than usual. Its glands were considerably enlarged. The ileo-coccal valve was on the posterior surface of the colon, and the small intestine passed into it without penetrating the sac. On removing the small intestines, the inner walls of the cavity were found rough, and coated with false membrane. They were continuous with the peritoneal covering of the colon in the same way as on the external surface. The cavity was bounded upon both sides by the ascending and descending colon, below, by the attachment of the sac to the spine; while above, it extended upward under the colon as far as the stomach.

From this examination, it is evident that the anomaly in this case consists in the attachment of the transverse mesocolon; which, instead of passing directly backward to the spine between the stomach and small intestines, is continued over them, and attached to the vertebræ below the mesentery—holding and compressing them, very much as the serotum is held by a suspensory bandage. On each side, the peritoneum, as is frequently the case, did not envelop, entirely, the large intestine, forming on the under side a mesocolon for that part of it, but was reflected from the walls of the abdomen over only the anterior three-fourths, leaving the posterior portion uncovered by peritoneum. After covering part of the intestines, the peritoneum was continued inward toward the median line, forming the lateral portions of the sac.

C. H. S.

F. S. A.

Separation of the entire Long Flexor of the Thumb, by a Twisting Rope.—Dr. HENRY O. STONE showed the specimen, which was sent to the Society, for their Cabinet, by Dr. HENRY A. MARTIN, of Roxbury, who also sent the following letter descriptive of the accident, and which was read by Dr. S. to the Society:

"On the twenty-first of September, the left thumb of a boy, named Lowry, was caught between the rapidly twisting strands of a rope, in process of manufacture; in consequence of which, the last phalanx and a portion of the soft parts about it were instantly torn away, together with the entire tendon of the long flexor of the thumb, even including the tendinous portion of that small slip of the muscle taking its origin from the anterior aspect of the head and upper portion of the ulna, and which is so delicate and insignificant as not to be generally noticed by anatomical writers. (It is figured in the "*Petit Atlas d'Anatomie*" of MASSE.)

"When I saw the boy, a few minutes after the accident, he complained of

much pain at the extremity of what remained of his thumb, and of a slight aching sensation in the forearm, somewhat increased by pressure along the track of the abstracted tendon. The wound was just such an one as would have followed a well-performed amputation, and was dressed accordingly; the following day, sensitiveness on pressure along the forearm continued, and was, perhaps, very slightly increased; a dose of salts, with half a grain of tartarized antimony, was administered the next morning; pain on pressure was very trifling, and confined to a small space just above and under the annular ligament; from this time till the 8th of the present month, when I last saw the patient, there was not the slightest pain complained of by him, nor any sensitiveness to pressure along the forearm; I was this morning informed by the boy's employer that he returned to his work on the 10th instant.

"I have thought the above case not unworthy of record, for the accident was certainly a very curious one, and, moreover, there seemed to me, in the absence of all bad symptoms following the injury, a striking proof of the facility with which the reparative processes are carried on in wounds, entirely excluded from the air. We have, consequently, a strong argument, if any be needed, for the safety of even extensive subcutaneous incisions, for in this instance, from the nature of the accident, air could not by any possibility enter the wound, as, under the influence of external atmospheric pressure, the surrounding soft parts would instantly obliterate the space previously occupied by the lost tendon, and, as a consequence of this entire exclusion of the air, an extensive *lacerated* wound was repaired without even the shadow of a bad symptom."

Bony Deposit on Dura Mater—Microscopic Test, &c.—Dr. DURKEE showed two specimens of bone taken from the inner surface of the dura mater. They were mere irregular spiculae before being prepared for microscopic examination. These two specimens were compared with several other portions of normal bone taken from the femur, humerus, &c. No difference could be discovered between the several preparations. They were examined with Nachet's and Spencer's microscopes by the members present. The system of Haversian canals, the lacunæ, the canaliculi, the laminæ, &c., were in all exactly alike.

Dr. Durkee remarked that he had worked out a great many specimens of bone, from the young foetus, weighing only sixty grains, to the adult subject; and that the lacunæ and canaliculi varied considerably in appearance; that is, the lacunæ would sometimes have the canaliculi only on one side, and in some specimens they appeared less numerous than in others; but he had never examined any that appeared in all anatomical features more perfect than those found attached to the dura mater which he had just exhibited. Both specimens from the dura mater were treated with very weak muriatic acid, to remove a portion of their earthy constituents, and thereby display the canaliculi and lacunæ more boldly, as is always the fact in true bony structure. The spiculae responded to the action of the acid very promptly; and here we have a chemical proof that they are real bone. Dr. D. remarked that it is impossible to say whether cartilage cells existed before the formation of bone or not, inasmuch as we have no means of reducing bone to its original cartilaginous state in any case.

Dr. BACON also exhibited transverse and longitudinal sections of an ossific deposit from the dura mater, examined by him a year since. These show the concentric laminæ, lacunæ, and canaliculi of true bone. The Haversian canals generally run in the direction of the length of the bony plate, and are con-

nected by transverse branches, in the usual manner. The osseous tissue is continued into the projecting spicula, and no cartilage of ossification is visible. On removing the mineral matter by dilute hydrochloric acid, the animal matter is left retaining the form of the plate, as in normal bone.

Dr. BURNETT remarked, that the specimen of ossific deposit upon the dura mater, exhibited at the last meeting by Dr. Jackson, and microscopic preparations of which were on the table this evening, had more than usual interest from its important bearing on a point in histology.

It has been a question since the days of the earlier microscopical investigators, and especially since the time of MIESCHER, whether or not bone was always formed in a pre-existing cartilaginous matrix. Many excellent observers have maintained, that it is always preceded by cartilage, and that in the case of the formation of the cranial bones, which are particularly those alleged to be formed in membranes and not in cartilage, there is really a delicate but very transient cartilaginous layer preceding the appearance of the true bone.

Dr. B. said that this is the view advocated by Miescher especially; and that from his own researches upon the formation and development of bone in foetal goats, he has been obliged to adopt the opinion that bone is always formed *out of cartilage*, and that the Purkinjean corpuscles of bone are only the transformed cartilage cells.

On the other hand, KÖLLIKER, SHARPEY, and others, from recent investigations, advocate the possible *intra-membranous* formation of bone, and especially those forming the vault of the cranium.

The present specimen has the importance of furnishing valuable data towards a decision of this point, for here it is highly improbable that, in this epigenesis, cartilage, which is a true embryological formation, should have preceded the development of the bony matter, and, what is more, this bony matter has all the true constituents of bone precisely as though formed in the foetus. Dr. B. said, moreover, that his former opinions, already invalidated by the results of so excellent an observer as Kölliker, are considerably shaken by this specimen, and by the interpretation we are obliged to put upon it. Dr. B. added, that this is a striking instance of the manner in which pathology may sometimes ably serve physiology.

Entozoa.—Dr. BURNETT exhibited specimens of Entozoa, with the following remarks. These worms are far from being rare or uncommon, and were taken from the omentum of a sheep. They are the well-known *Cysticerci* of that animal, and the like of which occur also in many of our other domestic animals. I present them in both conditions—of being invested with a sac, as they are always found, and with the sac removed, showing the animal itself. These parasites are objects of considerable physiological interest, from the recent researches which have been made upon their economy and real character. These investigations have cleared up not only this subject, but also allied ones, and have removed some of the strongest data in favour of the equivocal generation of these animals. SIEBOLD, the greatest of living helminthologists, has ascertained from long-continued and careful experiments, that these anomalous forms of Entozoa, as also others which have likewise been regularly classified and arranged, are only forms of *Taeniae*, existing under that singular state of conditions, known as constituting an *alternation of generation*; that is, where an animal, A, produces by means of eggs, individuals, B, which are apparently dissimilar to their parent. These individuals, B, are sexless, and reproduce offspring resembling A, without any sexual process. These intermediate forms, B, are called the *nurses*, and are represented

in the specimens now shown, only that here, as with nearly all the *Cysticerci*, they have so degenerated, as to be wholly unable to reproduce the true tæniæ, and are therefore entirely abortive animal forms. If there were time, it would be interesting to detail here many curious facts, recently ascertained, as to the various migrations these tæniæ perform, in order to reach their final resting-place—such as from insect to bird, and from bird to mammal, living in each under different forms, and becoming perhaps the true tæniæ in the mammal—their last habitat.

I will only add that such researches tend very much to lessen the number of true zoological entozoa, and the present specimens belong to an order (*Cystici*) which has thereby been wholly removed from zoology.

Nov. 14. *Placenta Prævia.* Dr. BUCKMINSTER BROWN read the two following cases:—

CASE I.—Mrs. K., twenty-seven years of age, six months advanced in her second pregnancy. Her previous confinement had not been marked by excessive hemorrhage; the child, however, only survived one day. Two weeks previous to my seeing her, she had, for the first time, a slight discharge of blood from the vagina; which had ceased and returned again three times during that period. The evening before, the flow had been so severe as to greatly alarm her attendants. It continued, however, but a short time.

On examination, I found some oozing from the vagina, which was full of coagula, and the bedding much wet from the last night's flooding. The os uteri was soft, but not dilated. In this state of things, nature having already checked the hemorrhage, I did not deem active interference advisable, nor feel justified in disturbing this favourable condition, even so far as to ascertain the presentation.

In cases of uterine hemorrhage, whether unavoidable or accidental, it is well known, that if the bleeding is efficiently checked, the woman may carry her child two or three weeks, or even to the end of her term, without any alarming return of the flooding. In cases of the first-mentioned description, however, the commencement of labour is generally marked by a copious gush of blood. A curious and interesting instance of the advantage to be derived by following the expectant method in these cases, is related by Velpeau. It occurred in the person of a young woman at the Maternité, at Tours, who was seized with flooding three times; with an interval of a fortnight between each attack, in the two latter months of gestation. She was delivered at the natural period. There were found "on the surface of the placenta three distinct layers, about the size of a three-livres piece; one of these layers, which was very near the edge of the placenta, was composed of a clot that was still red, of a lenticular shape, and with difficulty separable from the after-birth; the second was composed of a fibrinous concretion, much firmer, and scarcely coloured at all; the third looked more like a sort of cicatrix." These three spots M. Velpeau considers undoubtedly to have been the seat of the three hemorrhages which took place previous to labour. The same author likewise mentions another case of accidental hemorrhage, in the third month of pregnancy, which was so profuse that in the space of thirty-six hours more than two quarts of blood were lost, notwithstanding which the woman did not miscarry. M. Duparcque relates a case of *placenta prævia*, in which flowing came on as early as the sixth month, but ceased spontaneously, and did not return until the commencement of labour. Hemorrhage under these circumstances occurs much more rarely in the first months of gestation, than where

it takes place in consequence of the simple accidental separation of a portion of the surface of the placenta from the walls of the uterus.

During my first two visits, the treatment consisted in simply enforcing the necessity of perfect quiet; that the patient should be kept cool; cold drinks taken, and aromatic sulphuric acid administered; at stated intervals, pills composed of acetate of lead and opium.

At half-past one, at night, I was called in great haste. The flooding was profuse, the bedding soaked, and the blood dripping through it, and standing in pools on the floor. The pulse fluttering; there was tendency to syncope, with vomiting, gaping, &c. The os uteri still undilated, and the placenta found to be attached directly over it.

Urged by the considerations above referred to, and by the state of the os, active temporizing measures, in the first place, were determined upon, with the intention of affording the woman the chance of saving her child, before proceeding to the *dernier ressort*, and attempting a forced delivery. Cloths, wet with cold water, were flapped upon the abdomen, ice was applied to the vulva, and a sinapism to the back. This last application is considered by M. Velpeau as one of the most powerful and useful revulsives, in such cases, with which he is acquainted, and more to be relied upon than any other remedy. MM. Trastour, Larouche, Nivert, and others, have made use of it with much advantage.

These measures, pursued with vigour, soon produced their effect. The hemorrhage rapidly lessened, and in a short time almost entirely ceased. A slight discharge, however, still continuing, it was decided, in order to insure as great an amount of safety as possible, to make use of the *tampon*. A fine linen cloth was introduced in the form of a sac, oiled on one side; this was filled with tow and wadding. Over the whole, a linen compress was placed, and all made firm by a crucial bandage.

The bleeding was completely checked; there was great improvement in the pulse, and all the threatenings of syncope passed away. After waiting a sufficient length of time, finding there was no return of the hemorrhage, directions for perfect quiet were strictly enforced, and the patient was left for a brief period.

At 10 $\frac{1}{2}$ A. M., I was again summoned, and found that the tampon had become in some degree displaced, and that the hemorrhage had returned to a frightful extent. The remedies previously employed were again put in operation, while the necessary measures preliminary to *turning* were taken; and, by my request, Dr. W. E. Coale was called in consultation. Dr. C. arrived immediately, and having fully concurred as to the necessity for turning the child, with his assistance the operation was performed, and the woman delivered of a still male child.

Stimulants were administered, and the patient slowly recovered. The only adverse circumstance which occurred was an excessive irritability of the stomach, which was subdued by morphia.

The placental presentation, with the consequent unavoidable hemorrhage; the recovery of the patient, notwithstanding the immense quantity of blood lost; combined with the danger arising from the operation of turning, a step involving great hazard in her exhausted state, are among the chief points to be noted in this case.

CASE II.—Mrs. O., thirty years of age; third pregnancy. Her previous confinements had been very severe, attended with much hemorrhage. Only one child was born alive, which lived twelve months. She was first seen

by me, Nov. 9, on account of severe hemorrhage from the vagina. She was in the seventh month. Had had some flowing from vagina for about a month. During the last ten days it had occurred from time to time in gushes, very considerable; and previous to my visit, the bleeding had been alarming. Her countenance presented a remarkably fixed, unnatural appearance, which, taken in connection with excessive nervous excitement, induced the fear of cerebral trouble and the anticipation of convulsions. At this time the flowing was slight; the child was living, as ascertained by auscultation; the foetal movements could likewise be distinctly felt. The uterus was at intervals in a state of spasmodic contraction, which at times was so violent as to force the head of the foetus against the abdominal parietes, where it could be felt forming a projecting tumour.

Pills of acetate of lead and opium were prescribed; perfect rest in the horizontal position, together with cold applications to the abdomen and vulva were directed; also, my instant sumuiions should there be the slightest hemorrhage.

At 6 P. M. was again requested to visit the patient, and informed that there had been one profuse gush of blood. This had subsided, and labour appeared to have commenced. There was no placental souffle; the only sound heard was, from time to time, that of muscular contraction. The os uteri was slightly dilated, sufficiently so to ascertain the presentation, which proved to be *placental*. The uneven, lobulated tissue of the placenta completely closed the mouth of the uterus, being attached directly over the cervix.

The bleeding, at this time, was not alarming; it was decided to wait for increased dilatation. When this had sufficiently advanced, ergot was administered, and I proceeded to deliver, the, in such cases, falsely called *after-birth*. It was important that this preliminary step should be taken as soon as possible, both in order to prevent farther hemorrhage, and also to make way for the advance of the child. This could not be accomplished until the membrane had been ruptured, and the waters partially discharged. The membranes were unusually tough and thick; it was impossible to penetrate them with the finger-nail, which, in such cases, has usually answered the purpose, and a sharp-pointed probe was introduced before their rupture could be effected.

The delivery of the placenta was a slow and somewhat difficult process, on account of the forcible contractions of the uterus, by which it was tightly impacted between the body of the child and the uterine parietes. Thus far the plan suggested by Prof. Simpson, of Edinburgh, had been pursued. Having dislodged the placenta, it was discovered that the difficulties of the case had but just commenced, and that behind it there were presenting an arm and side of the chest. The child was, in fact, lying directly across the pelvis. The right arm presented. Turning was the only alternative, and was immediately determined upon. The pains were now very violent. As soon as possible, the hand was introduced into the uterus, following the chest and abdomen of the child, until the feet were reached; a new obstacle now presented itself, growing out of the thickness of the membranes before referred to. The opening previously made had been closed by the downward pressure of the child, which prevented the escape of the liquor amnii, and a bag partially filled with water was interposed, effectually preventing the feet being seized. It was not until chloroform had been administered, and, through its agency, relaxation of the uterus effected, thus allowing the waters to drain off, that this difficulty was overcome, and the operation successfully accomplished.

The child was stillborn, and was remarkably large for the term of gestation. The membranes, upon examination, were found to be unnaturally firm and thick.

The uterus contracted well. The patient's strength, now much exhausted, was recruited by the necessary restoratives, and at 5 A. M. she was left comfortable.

During the day, there was considerable tenderness over the uterus. Pulse 120.

Nov. 11. The tenderness had increased, and there was much enlargement of the uterine globe, which was in a state of irregular, lobulated contraction. Pulse 106. Ol. ricini was directed; to be followed, during the day, by powders composed of calomel, ipecac., and opium; and fomentations to the abdomen were ordered.

12th. Some increase of tenderness on pressure. Directed one powder every four hours.

On the 14th, the patient was fully under the mercurial influence, and there was a decided improvement in the symptoms.

On the 16th, pressure made with considerable force over the uterus, gave no pain.

Convalescence progressed without any accident.

Five important points may be noticed in this case.

In the first place, the placental presentation, and the unavoidable hemorrhage which preceded the delivery.

Dr. Robert Collins, in his statistical account of 16,654 births which occurred in the Dublin Lying-in Hospital, during the period when he had the medical charge of that institution, states that of this number there were but eleven placental presentations. Of these eleven cases, eight of the children presented naturally. Two were footling cases, and one was a breech presentation. Four were turned, and in one the head was lessened. Two of the four women, whose children were turned, died; the others recovered.

2. The presentation was complicated with procidence of the arm. In the 16,654 births just referred to, there was not one in which this complication occurred.

3. The great tenacity of the membranes may be noticed.

4. The early delivery of the placenta; which, in this instance, was a successful application of the principle, and was attended with a favourable result.

5. The relaxation of the uterus and of the voluntary muscles attendant on the state of anaesthesia, by which the operation of turning was rendered simpler to the operator, as well as painless to the patient.

ART. V.—*Sarcina Ventriculi in connection with Disease, &c.* By SILAS DURKEE, M. D. (With a wood-cut.) Read before the Boston Society for Medical Improvement.

September 28, 1853. Mrs. M. called on me for advice. Patient is thirty-eight years old; stout, robust frame, and rather fleshy; was married to her second husband (with whom she now lives) six years ago. Reports that her

first husband died twelve years since. For a long time previous to his death, he suffered from constitutional syphilis, and is known to have gone down to the grave with that disease upon him.

For about a year before she was married to her present husband, patient noticed "a trifling soreness inside the nose," as she expressed herself; but from this she experienced no particular inconvenience until about three years since. At that time she began to be troubled more seriously with "the soreness," and subsequently with ulceration of the lining membrane of the nose. The patient makes various statements and admissions in regard to her health during the last six or eight years; and I find it useless to attempt to get the facts in the case from her. I have the authority of her former physician to say that she had the venereal disease, communicated to her, in all probability, by her former husband. She now has lupus exedens of the nose; and I regard the case as syphilitic. Some two years ago, the vomer and other nasal bones became affected, and numerous spiculae have from time to time been cast off. The disease, thus located, has undergone various alternations, being sometimes stationary, sometimes on the increase, and at other times so far on the decline as to give very little trouble.

In April last, the alæ nasi became hypertrophied and inflamed; and several small, hard tubercles soon developed themselves on the cuticular surface, the right ala and its immediate tegumentary connections being more seriously implicated than the corresponding parts on the other side. No exfoliations of bone for several months past. Without prosecuting the history of the case any farther in detail here, it is sufficient to say that the malady is very distinctly and unequivocally "pronounced."

Upon attempting to ascertain, by near inspection and the probe, the condition of the diseased parts, the fetid emanation therefrom was so intolerable that I was obliged to desist, and to make my retreat. Patient was directed to use an injection of chloride of soda one part to water six parts; injection to be repeated four or five times daily. Mrs. M. used this remedy faithfully, and called upon me again on the morning of

October 8. Dr. B. S. Shaw, who has rendered me valuable assistance in microscopic researches on various occasions, was in my office at this time. We had no trouble in examining the case to-day, the putrescent odour having been nearly destroyed by the soda injection. So far as the eye could detect, the morbid surface was clean and dry. A smooth glass rod was passed one inch and a half up the right nostril, for the purpose of ascertaining the condition of the parts and of procuring any matters that might be lodged upon them. Upon withdrawing the rod, its end was loaded with a thick white caseous substance, not unlike what is often found upon the ulcerated tonsils of a scrofulous subject. This was the appearance to the naked eye. Upon subjecting it to Spence's microscope, with a power of 500 diameters, we readily perceived something in the field unlike what we had ever seen before in pathological specimens. We found a great abundance of what proved to be masses of *sarcina ventriculi*, mixed with epithelium, free epithelial nuclei, and mucus. No pus-globules.

The *sarcina ventriculi* was first discovered by Prof. John Goodsir, in the contents ejected from the human stomach, and was described by him in the *Edinburgh Medical and Surgical Journal*, for April, 1842; and, since this discovery, its existence in the animal organisms has attracted no little attention among medical men and naturalists. Goodsir regarded it as a cryptogamic vegetable parasite of very low organization; and his opinion is in a fair way

to be fully confirmed, although it has not as yet received the concurrence of all who have studied the sarcina.

The repeated examinations which I have made of the substance in question, enable me to bear testimony to the very accurate description given by Goodsir,

and a synopsis of which I here subjoin. In every instance, the parasites presented themselves in the form of square or slightly oblong transparent plates, of a pale yellow or brown colour. They were made up of cells, the walls of which appeared rigid, and could be perceived passing from one flat surface to another as dissepiments. These dissepiments, as well as the transparent spaces, were, from compression of contiguity, rectilinear, and all the angles right angles; but the bounding cells bulged somewhat irregularly on the edges of the organism, by reason of the freedom from pressure. [See Fig.] These circumstances gave

*Sarcina Ventriculi, seu
Sarcina Goodsirii.*

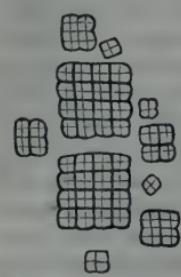
the whole mass the appearance of a "wool-pack," or of a soft bundle bound with a cord, crossing it four times at right angles and at equal distances. From these very striking peculiarities of form, Goodsir proposed for it the generic name SARCINA; that is, a pack, or wool-pack. (*Vide* Simon's *Chemistry of Man.*)

The sarcina has in several instances been found in the human stomach, also in the stomach of the hare and the dog, and frequently in the fecal discharges in diarrhoea. Heller has found it three times in the urine, where it formed a thick white sediment. In two instances it has been detected in abscess of the lungs, and once in carcinoma of the rectum. These are the only localities in which this substance has been known to exist hitherto. Another habitat may now be added, viz. the human nose. And it seems not a little singular that, notwithstanding several pathologists and chemists in this country have been on the lookout for the sarcina in their microscopic investigations, there is no record, so far as I know, of its having been discovered, except in Europe. The case now under consideration may therefore be regarded as the first of the kind in this country.

The sarcina is, in all probability, a vegetable product, and its place, I think, is in the family of cryptogamic plants known as Diatomaceæ among botanists. At the time the specimens in question were removed from the lopoid surface to the glass slide for examination, they were of a delicate green colour; but the whole mass soon parted with its chlorophylle, and became nearly transparent, and highly refractive. The sarcina ventriculi is called by Robin merismopœdia ventriculi.¹ He has devoted several pages to the subject,² and considers that the substance is a coriaceous, transparent plant, made up of cubic, elongated, prismatic, or even irregular masses, composed habitually of 8, 16, or 64 cubic cells, each face of which is divided into four parts by slight

¹ Merismos Division.

² Robin, Végétaux parasites. Paris, 1853.



furrows. According to his measurement, the masses vary from 0.030 to 0.050 of a millimetre in length, and from 0.016 to 0.020 of a millimetre in breadth, and have a very clear brown colour; cells transparent, contiguous, or slightly separated. He states that each cell has a nucleus, the feeble brown colour of which determines the colour of the whole mass. Drs. Bacon, Burnett, Shaw, and myself spent several hours in examining the sarcina with a power of 600 to 800 diameters of Nachet's microscope, and with a power of more than 1,200 diameters of Spencer's best instruments; and, with all desirable facilities for a faithful study of its most minute structure, we were unable to see the nuclei to which Robin refers. He thinks the sarcina differs from the *Gonium pectorale* or *G. tranquillum* of Ehrenberg, in having the tabular masses smaller, and the cells nearly twice as large, and being nearer each other; and he ranks it among the lowest classes of algae.

Frerichs has studied the development of sarcinæ in the stomach of a dog, by means of a fistulous opening. The cells, according to him, were at first round, isolated, rarely in groups of two, without nucleus, and measuring 0.005 to 0.007 of a millimetre. Transparent at first, these cells presented, little by little, a median line or furrow, which was soon crossed at right angles by a second. These lines extended entirely across the cell, so as to divide it into four parts. Each one of these parts had a diameter of 0.002 to 0.003 of a millimetre; and each one of these was divided, in its turn, into four new parts, as before. The primitive cell increases in this way by division into rectangular cells of fours.

The successive stages in the development of the simpler algae are very satisfactorily shown and explained in Carpenter's *Comparative Anatomy*, and correspond with the observations of Frerichs in regard to the sarcina. In Carpenter's Fig. 67, it will be seen that the thallus of the *Ulva furfuracea*, which grows by the process of transverse subdivision, is very much like the figure of the sarcina which I have appended to this communication.

Bennett, in his *Clinical Lectures* (p. 214), has a figure of the sarcina, and describes it as consisting of square particles, which apparently increase by fissiparous division in regular order, so that they present square bundles of four, sixteen, sixty-four, or a multiple of these.

The specimens which I obtained varied in size, and were divided by crucial lines. The cells ranged from 0.007 to 0.002 of a millimetre. In English inches, the measurement may be expressed thus: the largest quadruple cell measured = $\frac{1}{5650}$ of an inch. The smallest quadruple cell measured = $\frac{1}{11600}$ of an inch, making the average size = $\frac{1}{8470}$ of an inch. The average size of each ultimate cell was = $\frac{1}{17000}$ of an inch (which is about one-sixth the size of a human blood-corpuscle). The cells were easily separated from each other by slight pressure, and, with the most careful manipulation, it was difficult to preserve more than four cells in a group together, and in their natural position. With the mass thus divided, it was easy to bring out their form distinctly. Numerous solitary cells were continually brought to view in the field, but from

these less satisfactory results were obtained. The relative arrangement of the cells, where they were most numerous and in their normal state, appeared to be almost a perfect fac-simile of what is seen in the frond of the *Porphyra vulgaris*. I happen to have a good specimen of the porphyra, which was mounted two years ago for microscopic purposes. This marine plant contains roundish granules in cells as one of its means of fructification. These cells are arranged in a quaternate manner, and cover the whole parenchyma of the frond. They are larger than those of the sarcina; but the shape and relative position, one with another, of the cells in the two substances are identical; and this anatomical affinity affords a strong collateral reason in favour of the vegetable character of the sarcina.

It is well known that the cells in many of the algae contain a glutinous substance which serves as a feeble cell-wall, and it is by means of this substance that the individual cells are held together so as to form a frond or thallus. Some of the lower orders of the algoid tribes have their mucous cell-wall strengthened by a coating of silicious matter, which frequently presents very distinct and beautiful markings. This is the fact with the diatoms especially; and the sarcina affords a good illustration of this aggregation of cells, and of well-defined crucial markings; and its silicious qualities can scarcely be doubted, when it is considered that neither acetic, nor nitric, nor sulphuric acid has any effect upon it; neither do the alkalies, even when hot, except that they separate the component cells from each other. Ehrenberg has assigned the diatoms a place in the animal kingdom, but they are now considered by most naturalists as belonging to the vegetable world.

Robin has satisfied himself that the sarcina differs from the torula of fermentation, from partly digested starch-globules, and from muscle; also from the gonium, or voloox, or any species of infusoria. Busk¹ considers the sarcinae a species of gonium. He discovered them in three cases under his care in the Dreadnaught hospital-ship, one being a patient suffering from rupture of the diaphragm. Lehmann² considers it identical with the gonium tranquillum of Ehrenberg. Vogel also regards it as a species of gonium. Virchow, in his *Archiv* for 1847, appears to have studied this subject with great care. He makes the following *resumé*:—

“It is not shown that the sarcina is the product of decomposition.

“The sarcina has no determined connection with the action of fermentation, or with any symptom of disease.

“Its cellular nature is not demonstrated. In ease it were, it could without fear be assigned to the lower classes of plants.”

The author last quoted says that the presence of the sarcina in the stomach does not produce particular symptoms, for it has been found at autopsies in stomachs both healthy and diseased, in anatomical conditions entirely different, even in the stomachs of people who have not vomited. On the other hand,

¹ Microscop. Journ. 1843.

² Patholog. Chemistry.

several cases of obstinate vomiting have been reported where the sarcinæ have been found in the matters ejected.¹ It is said that these cases generally prove fatal. So that the opinion of Virchow as to the uninjurious effects of the sarcina must be considered as hypothetical.

The mode of propagation of the sarcina is doubtless by cleavage or cell-division, each cell containing the germ of reproduction within itself. Thus the lupoid surface, upon which my specimens were found, may be regarded as a rich flora; and whether the spores that must be constantly floating about in every direction, wherever the patient goes, can find lodgment in other similar localities, remains to be seen. Her husband, or some other member of the family, may at some future day bear witness in the premises.

For some time subsequent to the discovery of the sarcina ventriculi by Goodsir, its presence in the system was supposed to depend exclusively upon some gastric derangement, as, for instance, pyrosis. In cases where this parasite has been found in vomited matters, the symptoms have been quite uniform, viz. flatulent distension of stomach, a burning sensation referred to the epigastrium and upwards in the course of the oesophagus, and frequent vomiting of a fluid containing a great amount of acetic acid. And the supposition just alluded to is not without some show of reason. But as yet we have not sufficient facts to guide us to actual demonstration. On the one hand, it may be said that of all the specimens that have been found in different organs, the contents of the stomach may have been the only producing soil, and the parasites may have been transported along with the fluids. On the other hand, there is equal probability that the sarcinæ are indigenous to the localities where they have been discovered. And it seems to me that before we can reach any satisfactory solution of this subject, we must await the advent of farther scientific light.

October 31. Since writing the foregoing, I have seen the *British and Foreign Medico-Chirurgical Review* for this month. In this number, Dr. Wm. Jenner has a short communication, stating that in July, 1852, he found Sarcinæ Goodsirii in fluid taken from the ventricles of the brain of a boy four years of age, who died of acute tuberculosis. But unfortunately the fluid was not examined microscopically until forty-eight hours after the death of the patient; and the sarcinæ might have been a *post-mortem* product. Dr. Jenner mentions one or two recent cases reported by Heller, in which the sarcinæ were found in urine which was entirely free from any admixture with vomited matters. In one case, the urine was examined for many weeks in succession, and a sediment in it formed of an inch in depth, and was composed entirely of sarcinæ, mixed with a little carbonate of lime. Thus the question as to whether the stomach is or is not the only organ in which the sarcinæ may originate, is put to rest in the negative.

Dr. Jenner's report of the measurement of the parasites found by him

¹ *Vide* Queckett's Lectures on Histology.

agrees very nearly with the statements already mentioned in this communication.

November 1. During the past eight days the discharge from the lupus has been very trifling. To-day I was unable to procure the amount of half a drop. In this small quantity I found two or three quadrangular cells of sarcinæ. Patient has frequently been questioned relative to any gastric trouble, and has uniformly replied that none existed. To-day, however, she was asked if she had ever been troubled with what is called "water-brash," and she replied in the affirmative. I must be allowed to say that as the answer was in return to a leading question, she appeared to speak in accordance with what she supposed to be my wish. Her attending physician states to me that she never had any pyrosis, or symptoms at all indicative of any such condition.

BOSTON, Nov. 1, 1853.

ART. VI.—*Epidemic Cholera; its Contagion, Pathology, and Cure; with an Account of the Disease as it prevailed in Cumberland, Md., during the past summer.* By C. H. OHR, M. D., of Cumberland, Md.

MUCH diversity of opinion exists, as well in as out of the profession, in regard to the contagion of cholera. My observation of the disease in 1832-33, led me to the adoption of the opinion that it is neither contagious nor infectious; and I adhered to that opinion until the appearance of the disease in this place during the summer of 1853. The definitions of *contagion* and *infection* are so varied and dissonant, that it is well for each one using these terms, if he would not be misunderstood, to "define his position." In using the term *contagious*, I use it according to its radical meaning: *con*, by or with, and *tango* or *tayo*, I touch—by actual touch or contact; as, for example, scabies, lues, &c. By *infection*, I mean the propagation of the like disease, by means of a vitiated or poisoned atmosphere emanating from and surrounding the diseased person, to other persons coming within the range of that atmosphere, without contact of the body or clothing of the diseased subject. Cholera, as is the case with other diseases, has laws by which it is governed; that we do not understand them, is no proof that they do not exist. If ever we arrive at a full and accurate knowledge of these, it will be by the faithfully reported history of its origin and progress at the various localities in which it makes its appearance. By the combination of such reports, and a patient analysis of their details, an approximation to truth is much more probable than by theorizing on isolated cases. My purpose is to give its origin and progress at this place, so far as my observation and inquiries in reliable sources have enabled me to trace it.

The first case which occurred in this place was in the person of a boatman on the Chesapeake and Ohio Canal, named Mayo, who presented himself at

my office early one morning about the middle of July; his countenance was to me a sufficient index of his disease, which was fully established by examination. My inquiries elicited the fact that he was just from Williamsport, in the adjoining county, on the canal, at which place cholera was then raging with considerable violence; he lay out that day and night on the "green," and next morning was a corpse. The next case occurred about the last of July or first of August, in another boatman, and from the same place; he lay in a "green grocery," kept by a man named Hall; he recovered. This establishment was situated on the west side of Wills Creek, at its junction with the Potomac, and on the corner of Green Street. On the 6th of August, a little girl living with Hall died, and on the 7th Hall also died of cholera. On the same day, a boat-builder, named Cooter, was taken with the disease, and died in nine hours; he had been at Hall's a part of the preceding day; he lived on the east side of Wills Creek, on Mechanic Street, about a mile north from Hall's. In the mean time, several other deaths had occurred on Green Street, in the immediate neighbourhood of Hall's. On the 8th, Kennedy and several of his family manifested the disease; they lived about fifty yards from Hall's, and had had intercourse. On the night of the 8th, Hazel Beall, a watchman, was taken with the disease, and lived until the 14th; he had been at Hall's, and lived on North Mechanic Street, near Cooter. On the 12th, Mrs. H. Beall was taken with the disease, and died the same day. Four of their children were taken successively, and some of them were carried into the adjoining house of Mrs. A. Simpkins; two of them died, as did also Mrs. Simpkins and her child. On the 10th or 11th, Mrs. Nelson Beall went to Hazel's, and assisted to nurse; she was taken with the disease, went home, and died on the 13th; her husband and two children were taken with the disease, and died by the 19th. They lived out of town, about a mile and a quarter southeast from Hazel Beall's, on the Bedford road. No other persons in that neighbourhood were taken with the disease, and none of them entered the house from first to last. On the 18th, R. Sullivan was taken with the disease; he had been a day and night at Hazel Beall's; he lived out the eastern pike, near three-fourths of a mile from Hall's, and a greater distance southeast from Beall's; his mother and three children of a brother were successively taken; the mother and two of the children died. No other persons in that neighbourhood were taken with the disease except two mulatto girls, named Cole, both of whom had been assisting to take care of this family; they will be farther noticed in speaking of the treatment. During the interval from the 6th to the 18th, a number of deaths had occurred along Green Street; all passed off for cholera morbus; a less number had occurred on different parts of Mechanic Street, and some other points. The disease had been gradually thickening, the warning voice had been raised and disregarded, the citizens generally disbelieved, and most of the profession denied its existence. But the hideous fact stood at the door, and would no longer be excluded; "Blue Friday" (the 19th) came, and numbered thirteen victims; the panic

became universal, and by the close of the week the town was stripped of half its population; more than three thousand souls had abandoned home and friends; the disease was diffused all over town, and consequently no longer traceable.

Prior to this time, the summer had been more than usually healthy, there had been an occasional case of dysentery and cholera morbus, with a moderate number of cases of cholera infantum. The season had been unusually dry and hot; vegetation had suffered seriously from drought and grasshoppers; the air seemed pure and calm; there was nothing to indicate the coming disaster, unless it was in the imperturbable and unbroken calm of the elements. On the night of the 15th, our town was visited by a very heavy rain; the day of Tuesday seemed like its predecessors, but that night the watchmen's rattles and alarm-bells raised many of our citizens, not to the cry of fire, but water. It seemed as though a mighty avalanche of water had been suddenly hurled down the gorges and valleys of Wills and Knobley Mountains, rendering egress from many houses impracticable until the waters had subsided. On the morning of the 17th, many of our streets presented the ravages of the flood; in and around the public square could be seen, piled in indescribable confusion, lumber of all sorts, barrels, drygoods-boxes and coffin-boxes, and a plentiful deposit of mud and filth covered the principal streets. On the 18th, the disease was multiplying, and on the 19th reached its acme, but continued till October to a greater or less amount daily. One point more as to its origin. Hall's "green grocery" was a long, low, old frame one-story building, with about one-half that story below the pavement, which approached within three feet of it; it was kept for the retailing of cakes, candies, liquor, bacon, potatoes, cabbages, and rotten codfish, of which last article he had at the time of his death a plentiful supply; a place for the congregation of boatmen, loafers (white and black), and strong odours; apparently as favourable a place for the incubation of pestilence as could be desired. My inferences from the preceding are, that the poison, miasm, or *infection*, was brought from Williamsport by the boatman who lay sick at Hall's; that it was there incubated, was disseminated through the girl, Hall, Cooter, Kennedy, Beall, and others; was aggravated and hastened by the floods of the 15th and 16th, and was continued by the premature return and imprudence of the stampedes. To my mind, whatever it may have been elsewhere, it was here clearly infectious.

In entering upon the discussion of the pathology of cholera, I do not advance a new theory; the leading ideas were taught me, twenty years since, by my preceptor, Dr. Bærstler, now of Ohio, and is one which is acknowledged, to a greater or less extent, by many others; but its paramount importance seems not to have been duly appreciated, therapeutically, until recently. Within the last two years, Prof. Edwards, of Cincinnati, has publicly challenged the attention of the profession to this pathology and a system of treatment based thereon. This theory is not based on *post-mortem* appearances affirmatively, but negatively; the knife shows no appearances

which can in the remotest degree account for the appearances preceding death. Pathological anatomy failing us, we must rely on physiological anatomy.

My first proposition is, that epidemic cholera is primarily and pre-eminently a disease of the nervous system, and more especially of the *sympathetic or ganglionic system of nerves*. The second proposition is, that it is a depression or paralysis of the powers of these nerves. That it is a disease primarily affecting the nervous system, is argued from the suddenness of the attack and fatal termination; from the fact that no *post-mortem* appearances have been discovered which indicate any disease of other parts sufficient to account in any degree for the *ante-mortem* appearances; and from the fact that disease or lesion of no other part of the system produces death so speedily without leaving decisive marks behind it. That it is a disease of the nervous system, is argued from its most common proximate causes, from the habits, temperament, and condition of its subjects. That it is more especially a disease of the *sympathetic nerve*, we learn from the *ante-mortem* appearances and the physiological functions of that nerve. What are these functions?

"The sympathetic thus appears to exercise a threefold office: first, that of a sensitive nerve to the parts to which it is distributed; secondly, that of a motor nerve for certain muscular parts; and, thirdly, that of a nerve to the bloodvessels. It is almost certain that the bloodvessels enjoy in their coats a power of contractility, and it seems highly probable that these nerve-fibres exercise an influence upon that contractility. Such an influence, it is evident, would materially affect the nutrition of parts of the bloodvessels which are subject to it; and as secretion is mainly dependent on the normal nutrition of glands, it is reasonable to suppose that that function likewise would be, to a certain extent, controlled by these nerves." The sympathetic is "a portion of the nervous system peculiar in its composition, having, as regards some of its constituent fibres, a special relation to bloodvessels, particularly arteries (and these are the fibres which are independent of the cerebro-spinal centres, having distinct centres of their own)." "Clinging to the coats of arteries, it follows them, for the most part, in their ramifications, and attaches itself to them, somewhat as ivy does to a tree." "The intestinal canal, between the stomach and the lowest part of the colon, receives no nerves direct from the cerebro-spinal system, and is therefore dependent solely on the sympathetic for whatever of sensibility it enjoys, or for such motor power as may be usually called into action by nervous influence." (Todd and Bowman.)

If tubal digestion and assimilation are subject to nervous influence, they are consequently dependent for that influence on the ganglionic system of nerves. Does this nerve regulate only the contractile action of the arteries, or does it extend an influence beyond the external tube? Does not the circulating mass also, through the medium of the endangium, feel the influence of this nerve of organic life, and is not its vitality maintained through this agency?

What are the appearances presented in a cholera subject? The patient at first feels languid and depressed; these symptoms are dependent on disturbance of the nervous system, and are more marked after the epidemic is fairly developed; he is harassed with borborygmus, dependent on deficient

ganglionie nervous energy ; diarrhoea, at first slight and of the natural colour, but soon becoming thinner and lighter coloured, for want of biliary secretion, at last consisting of a limpid watery fluid, with a small quantity of whitish or pink-coloured flocculi, showing an absence of secretion by the intestinal tube and all the glands ordinarily emptying their secretions into it. As the intestinal tube shows no evidences, before or after death, of inflammation to such a degree as to produce such results, and the intestinal tube has no other nervous filaments, these phenomena are dependent on lesion of the ganglionie system of nerves. Spasms, not invariably, are attributable to disturbance of the nervous centres and their ramifications ; suppression of urine, attributable to want of energy in the sympathetic nerve ; coldness of the tongue and breath, a peculiar coldness and lividity of the skin ; retrocession of the eye into its socket, injection of the conjunctiva and dryness of its surface, all dependent on lesion of the ganglionie system of nerves.

"He found that the division of the trunk of the sympathetic in dogs, opposite the third or fourth cervical vertebra, was followed with remarkable rapidity by a disturbance in the circulation in the eyeball, giving rise to a swollen and apparently inflamed state of the conjunctiva, a contracted state of the pupil, a flattening of the cornea, and a retraction of the eyeball, with the protrusion of the fold of the conjunctiva known by the name of the haw, and a flow of tears. Dupuy found similar effects resulting from the extirpation of the superior cervical ganglion in horses. Dr. J. Reid confirms these results of section of one sympathetic in the neck, as far as regards the eye ; and he agrees with the other observers in stating that the injected state of the conjunctiva followed immediately after the section. In one case, he states that the redness of the conjunctiva took place a few minutes after the operation." (Todd and Bowman, p. 510.)

This demonstrates the truth of my second proposition uncontestedly, so far as the appearance of the eye is concerned ; that is a thing tangible and visible. What is true as regards the eye, is true as regards every other organ or tissue of the body under the control of the ganglionie system of nerves. The establishment of that point necessarily establishes the whole proposition, because here is submitted to *the eye* of the observer the control exercised over the circulation by the ganglionie nerve. And with the circulation goes secretion and the nutrition of parts ; but when we come to the digestive tube, and bear in mind the fact that "between the stomach and the lowest part of the colon" no nervous filaments are supplied except from the ganglionie centres, you have the explanation of the *quasi* appearance of inflammation that has been sometimes described as existing. Not only does this account for the injected condition of the intestinal tube, but also for the absence of secretion and the want of nutrition. The circulating mass receives no supply from assimilation, is deprived of the vital stimulus supplied by the sympathetic, dissolution ensues therein, its parts separate, and the tissues of the circulatory vessels and intestinal tube, also deprived of their vital energy, permit the principles of exosmose to come into play, from which results "rice-water"

discharges, consisting of the serum and portions of albumen of the blood. What pathological anatomy has failed to decipher is clearly shown by physiology and the *ante-mortem* appearances. In establishing this theory, reliance has not been placed on the writings of parties who had a particular theory to establish; these things were observed and written with no special reference to cholera, and therefore are most reliable.

A rational pathology alone admits of a rational system of treatment. In cholera, modes of practice the most opposite and irrational have had their advocates, from the first general outbreak of it to the present time, both in and out of the profession. These it is not my purpose to review, nor shall I occupy your space by notice of but one, not so much on account of its irrationality as on account of the serious manner in which this long-buried ghost, recently dragged from its grave, is again urged upon the profession. I refer to the system of injections, rectal and venous. As an adjuvant to *treatment*, anodyne and astringent substances, injected into the rectum, may sometimes prove serviceable, but cannot of themselves arrest a developed case of cholera, much less cure it. The injection of saline matters into a vein is less philosophic and less useful; if the artificial introduction of these substances into the blood will cure the disease, their natural existence there should have prevented it. Does or can a combination take place between the injected fluid and the crassamentum of the blood, anything like to its original and healthy condition? Will that combination be maintained, and the thin portions no longer be thrown off? Can you knock the heads out of a barrel and fill it by pouring water in at the bunghole?

In the earlier, or, as it is frequently called, the premonitory stage of cholera, when it consists of slight diarrhoea, with uneasiness in the bowels and a feeling of sickness, the cure is generally easy enough. The following I have found to answer a very good purpose: R. Tinct. opii, elixir paregoric, aqua menth., equal parts; half a teaspoonful every hour or half hour, until the bowels are checked; a large sinapism to the abdomen, go to bed, and keep quiet. The occasional use of 5ss of brandy, and three or four grains of mass hydrarg., with gr. $\frac{1}{2}$ or $\frac{1}{3}$ of opii, are sometimes necessary to regulate the secretions. Unfortunately, the practitioner is frequently not consulted in this condition of the disease. When the discharges have become frequent, thin, almost devoid of colour, vomiting, cramps, coldness and lividity of the skin are manifest, he is more likely to be called on. These symptoms characterize the second or congestive stage of the disease, and, if not speedily arrested, run into collapse. In this stage, calomel and opium have acquired and deserve more the confidence of the profession than any other of the heretofore commonly used agents; there is sound philosophy in their use, though they are frequently misused. I have found small and frequently repeated doses to answer the best purpose, and relied on them until the 21st of August last, on which day, in consequence of reflections excited by the scenes of the 19th, and the perusal

of Prof. Edwards's report, I resolved on and adopted the strychnia treatment, first in the case of—

Mary Cole, a mulatto girl, aged about 23, whom I was called to see on the 21st of August, at 8 A. M. She was vomiting, and purging "rice-water;" countenance sharp and shrunken; eye injected and deeply sunken; voice very weak; tongue and breath cold; respiration slow, with frequent sighing; pulse too irregular and indistinct to be counted; skin marbly cold, but dry; cramps occasional, with great thirst and restlessness. R. Strychnia gr. $\frac{1}{4}$; spt. terebinth. \mathfrak{zij} ; mucilage G. A. \mathfrak{zyj} . M. One teaspoonful every thirty minutes; large sinapis to stomach, and hot bricks to feet and legs. 10 $\frac{1}{2}$ A. M. Has had but two doses of the medicine, which were ejected; pulse gone; inclines to stupor; thirst intense, and dejections continue; give the medicine every hour, and a tablespoonful of brandy and water half an hour after. At 3 P. M. Dr. Dailey saw her with me; she had taken but one dose of the medicine, and refuses the brandy; vomiting and purging continue, but decreased in quantity; the doctor thinks she may live an hour; before leaving the house, I gave her a teaspoonful of the mixture, and insisted on its repetition every hour, with a little ice to allay the thirst. From that time she took but three doses, which were retained up to 7 A. M. of the 22d; there was then a very slight tremor perceptible at the wrist; the discharges have nearly ceased; vomiting recurs whenever drink is taken. Give the medicine every hour, and nothing else. At 10 A. M. I saw her again with Dr. D.; he thinks she may get well, as reaction is coming on; give the medicine every hour, apply the hot bricks, and give no ice or anything else than the medicine. At 7 P. M. she had taken but one dose of medicine; would drink; vomiting and purging had returned; pulseless; comatose; skin perspiring freely; voice scarcely perceptible; eyes deeply sunken in the socket, and very much injected; apply a large sinapis to abdomen and to arms, at least six hot bricks to legs, and give the medicine every half hour, and nothing else, until the discharge has stopped or become coloured. At 7 A. M. of the 23d, she had taken four doses of the medicine; reaction coming on; had this morning a slight greenish discharge; give her two teaspoonsfuls of rice-water once an hour, the medicine every two hours. On the 24th, she complained of great hunger; she was allowed that day a small quantity of blanc mange, and water in moderate quantities. On the 25th, arrowroot and soaked cracker; 26th, chicken water and rice; 30th, she was sitting beside a pot of bacon and beans; she took in all \mathfrak{zijss} of the mixture, and no other medicine, and is now as fat and hearty as ever. Her sister, Liz, was taken with the disease on the 23d; gave her—R. Protochlor. hyd. grs. iv; pulv. opii, gr. $\frac{1}{8}$. M. f. pills, one every hour till purging is stopped. 24th, 8 A. M. Had taken three pills; collapsed; no pulse, and perspiring freely. R. Strychnia, gr. $\frac{1}{4}$; aqua menth., mucilage, \mathfrak{aa} \mathfrak{ziss} ; one teaspoonful every twenty minutes. This formula was used because she complained of the smell of the terebinth producing vomiting; mustard plaster and hot bricks as above. 11 A. M. Has taken four doses; no discharge for the last hour; skin drying; pulse barely perceptible; give the medicine every hour until the discharges are checked or coloured. 5 P. M. Reaction is complete; secretion of urine; the last dejection green. She took \mathfrak{zj} of the mixture, and the day following—R. Mass. hydrarg. grs. v; pulv. opii gr. ss. M. f. pill. Was taken for the purpose of arresting the dejections, which were a dark green and scalding; she was then put on the same diet with her sister.

Alice Riley, aet. 38, I was called to see at 10 o'clock of the 24th August; she had been taken the preceding day, and had been abandoned, that morn-

ing by her physician, according to her statement. What medicine she had taken I did not, under the circumstances, stop to inquire; she was pulseless; the skin cold, livid, shrivelled, and bathed in a profuse cold sweat; cramps; limpid dejections; voice a whisper; eyes deeply retracted, and injected features; sharp and purple tongue, and breath cold. R. Strychnia gr. $\frac{1}{4}$; spt. terebinth. $\mathfrak{Z}ij$; mucilage $\mathfrak{Z}vi$. M. 1 teaspoonful every half hour; half a dozen hot bricks to the legs, and no drinks. 12, M. Has taken three doses of the medicine; bowels quiet for the last hour; no vomiting or cramps; pulse perceptible at the wrist; skin drying off, but still cold. R. Proto-chlor. hyd. grs. v; pulv. opii, gr. ss; MM. f. pills ij; one now to be followed by the mixture, and pill alternately every half-hour; no drinks. 2 P. M. Skin dry, and becoming warm; pulse tolerably distinct; small; has urinated; bowels not moved; time to give the mixture; give it; then suspend, and let her have ice in small quantities, once in twenty or thirty minutes. 7 P. M. Still improving; no motion of the bowels; take one pill as prescribed this morning. 25th, 8 A. M. Had a comfortable night; had a dejection this morning, slight and green. Arrow-root seasoned with cinnamon. 26th. Taken the case into her own hands on the 27th; went down stairs, and engaged in nursing.

Henry Knierim, aet. 55, German, of intemperate habits, called me August 28, 6 A. M. Vomiting and purging a clear limpid fluid, with a slight pinkish deposit of flocculi; cramps; pulse hardly perceptible; skin bathed in a profuse perspiration; cold, shrivelled, and purple tongue; cold; eyes sunken and injected. R. Strychnia gr. $\frac{1}{4}$; spt. terebinth. $\mathfrak{Z}ij$; mucilage g. Arab. $\mathfrak{Z}ss$. M. 1 teaspoonful every thirty minutes; sinapism; epigas.; hot brick to legs; brandy and water $\mathfrak{Z}ss$, occasionally. 7 $\frac{1}{2}$ A. M. Has taken the mixture and brandy; vomiting continues, and dejections; pulseless; give the mixture every twenty minutes; no other liquids or ice. 10 A. M. Purging has ceased for the last hour; pulse again perceptible, and skin less wet; continue medicine every hour. 6 P. M. Reaction complete; had one dark green operation, and discharge of urine; skin still moist; no cramp; take $\mathfrak{Z}ss$ of the mixture every three hours, if bowels should be moved so often. 29th, 6 A. M. Rested well; took but one dose of medicine, but complains of great thirst and nausea; reapply sinapism. 10 A. M. Has drunk a glass of lemonade; vomiting and purging of a clear fluid; pulseless; livid and sweating; seems to be rapidly sinking; give the mixture every fifteen minutes, and surround with hot bricks and bottles of hot water. 12 M. The purging has ceased; pulse perceptible; vomiting occasionally of a greenish fluid. Apply sinapism, and keep up hot applications; give the medicine every hour. 4 P. M. No dejection; has urinated; vomits, or rather regurgitates, when he attempts to raise himself, or take a drink; suspend the medicine. 30th, 7 A. M. Reaction seems complete; but vomiting of the greenish fluid continues; apply spiced whiskey to epigastrium, hot as it can be borne; take no drinks. 5 P. M. Vomiting still continues. R. Acid. hydrocyan. gtt. xvi. bicarb. soda $\mathfrak{Z}ss$; aqua font. $\mathfrak{Z}j$. M. 1 teaspoonful every hour until the stomach is quiet; continue hot applications. 31st, 6 A. M. Vomiting of the greenish fluid continues, but less frequently; bowels moved twice; greenish. R. Acid. hydrocyan. gtt. xvij; acet. morph. $\frac{1}{4}$ gr.; aqua font. $\mathfrak{Z}j$. M. 1 teaspoonful every hour. 11 $\frac{1}{2}$ A. M. Stomach seems quiet; suspend medicie, unless the vomiting returns; abstain from drinks or food till evening, then take rice or chicken-water, seasoned well with cinnamon; recovered.

John F. Fulton, German, aet. 50. August 30, 2 P. M. Collapsed. R. Strychnia $\frac{1}{4}$ gr.; spt. terebinth. $\mathfrak{Z}ij$; mucilage $\mathfrak{Z}ss$. M. One teaspoonful every No. LIII.—JAN. 1854. 8

half hour ; he took four doses, when it was suspended ; he was doing well until the next day, when he took a dose of beer ; after this the discharges recurred and mixture ; of this he took five doses, then suspended it ; he was doing well until the morning of the 2d September, when a plate of bonny-clabber started him the third time. The mixture was again resorted to, until he had taken four doses ; the diarrhoea was suspended, but vomiting of a greenish fluid continued until the 5th, when he died. The vomiting in these cases was attributable to the overaction of the strychnia ; in the case of Knierim, this was counteracted by hydrocyanic acid ; it failed in the case of Fulton, because its use was not persisted in beyond a dose at my visits, and he was indulged in drinks.

August 30, 4 A. M. Was called to see Mrs. R. R., aged 55, of exceedingly frail constitution ; had in the spring an attack of typhoid pneumonia, from which she had not recovered fully ; was taken with diarrhoea about midnight ; pulse barely perceptible ; cramps severe ; skin cold, moist, shrivelled, and purple ; eyes sunken ; injected ; and between the cornea and inner canthus of the left eye, the sclerotica presents a greenish-black spot, irregularly circular, about two lines in diameter. Ordered R. Strychnia $\frac{1}{2}$ gr; spt. terebinth. 3ij; mucilage 3vj. M. 1 teaspoonful every hour, to be alternated at the half-hour. R. Protoc. chlor. hyd. gr. iij; pulv. opii gr. ss. MM. f. pill, and a teaspoonful of brandy ; rub with dry mustard, until hot bricks are procured, with which surround. At 10 A. M., the bowels were quieted, and the skin more dry ; both eyes presented the dark spot between the cornea and inner canthus ; enlarging ; she died about 3 P. M. Whether the medicine arrested the discharges, or they ceased because there was no more fluid to escape, I will not determine ; but at my first visit it was evident that no medication could save her, as the process of gangrenous disintegration was manifest in the eye, indicating the want of sufficient vitality in the ganglionic system to respond to medicine.

The following case was furnished by Dr. B. A. Dougherty :—

August 31. 4 A. M. Called to see James C——m. Vomiting and purging "rice water," cramps in legs and abdomen, countenance livid, tongue cold, pulse small and rapid ; was seized with vomiting and purging the preceding afternoon. Ordered R. Prot. chlor. hyd. gr. iij; pulv. opii gr. ss; pulv. capsici grs. ii, every half hour. Sinapisms to abdomen and extremities. 7 A. M., is sinking, vomiting and purging continue. R. Sulph. strychnia gr. ss; ol. terebinth. 3ij; muc. g. Arab. 3vij; one teaspoonful every 15 minutes. 4 P. M., vomiting very slight, diarrhoea arrested ; tongue warm, cramps slight, pulse improving, and warmth returning to extremities. 7 P. M., tongue cold, pulse extremely feeble, vomiting much increased ; had one or two discharges, rather green and thin ; had taken two tumblers of beer ; continue mixt. and give brandy julep. Sept. 1, 7 A. M., vomiting a light-green fluid occasionally, no diarrhoea, extremities warm, and assuming a natural appearance ; continue. 3 P. M., much improved, vomiting nearly same as in the morning ; suspend strychnia. R. Prot. chlor. hyd. grs. x; pulv. opii gr. i; continue brandy. 8 P. M., vomiting ceased and altogether very much better ; no action on the bowels ; directed beef-tea, rice, and brandy. Recovered.

My partner, Dr. J. M. Smith, at my request, furnished the notes of the following case of a male infant, 3 years old :—

"I saw him first on the 22d August ; had some diarrhoea, with occasional vomiting. There was nothing in the appearances to indicate danger, and but for the existence of cholera in the neighbourhood, no reason to apprehend

any. I gave prot. chlor. hyd. with a small portion of opium, and a carminative mixture with tr. opii added, to be given every 4 hours as might be required to restrain the bowels, directing mustard plaster and hot whiskey cloths to be applied alternately. Until the morning of the 25th there was no material change; the passages were not frequent, and still coloured. I learned, on the morning of the 26th, that he had had several watery colourless passages during the night, not staining the clothes; the ejections had the same colourless appearance. I gave him one or two doses of calomel and opium and the common cholera mixture, to be repeated after every operation, with brandy and ice water, and occasionally ice water alone. The passages in frequency and amount more lessened, but thin and colourless; in the evening he took no notice, and fearing the opiates by the mouth, gave spts. camph. and aqua menth. every two or three hours, and enema with tr. opii and spts. camph. after each operation. 27th. Had been restless during the night, but noticed nothing; had several small, thin, and colourless passages; continued the remedies without much hope of doing any good. During the day the passages continued about the same; in the evening more depressed; pulse extremely feeble; extremities only kept warm by hot applications; skin clammy, but no very free perspiration; directed the spts. camphor, the enema occasionally, and brandy or wine and water sinapisms to extremities. 28th. Rather more depressed; been insensible during the night; his death had been hourly expected by the family. Thinking no evil could possibly result, determined to give the strychnia (I had not before given it to small children). I directed the prescription kept in the office, adding two parts water to one of the mixture,¹ directing half a teaspoonful to be given alternately every hour with the spts. camphor until he had taken three doses, then to suspend it. M. He was much in the same condition; no operation; skin dryer. In the evening had had no passage; extremities rather warmer; still insensible; directed one dose of the strychnia, and the spts. camphor to be continued. 29th. Restless during the night; had one slight dark passage; takes no notice, but more expression of the eye; skin warm and dry; pulse distinct; directed one dose of the strychnia and spts. camph.; rice water with a little wine. Evening, observes things around, but does not speak; had two small dark passages. Continue spts. camph., rice water, or arrowroot, with wine. On the 30th he spoke, and from that time continued to improve."

I shall add but a brief history of my own case:—

I had been suffering from dysentery when the epidemic began, say 6th August; circumstances would not then permit my attending to it; it was kept in moderate bounds by occasional small doses of blue mass and opium, and laudanum, with low diet, until the 16th, when the discharges were nothing but bloody mucus, when, at the urgent entreaty of Drs. J. M. Smith and G. C. Perry, I agreed to attend to myself; at 10 o'clock, I took prot. chlor. hyd. $\frac{3}{2}$ j; pulv. opii j, and went to bed; 4 hours after, took ol. ricini $\frac{3}{2}$ i; and next morning was out by daylight; the epidemic increasing. With a constant uneasiness and disposition to diarrhoea from that time up to the 20th of September, I struggled on by keeping up the use of blue mass et opium and anodyne mixture. On the evening of the 19th September, a decided diarrhoea manifested itself; on the morning of the 20th had two copious light-coloured, thin discharges, which brought me to the sofa at 10 A. M., when I took $\frac{3}{2}$ j of the strychnia mixture of the above formula. This quieted the commotion. On

¹ This mixture contained strychnia 1-16th gr., spts. terebinth. gtt. xij to $\frac{3}{2}$ j.

the 21st ordered arrowroot, which again produced discharges of yeasty light-coloured appearance, but consistent—R. Prot. chlor. hyd. grs. iv; pulv. opii gr. ss, of which two pills were taken. On the evening of the 22d I again tried food, with the same result; during the night took two doses of the mixture, and at daylight had a clear limpid discharge, with flocculent deposit, amounting to a quart. I immediately sent for Dr. J. M. Smith, feeling that another dose of the strychnia mixture would produce vomiting, the turpentine, as I had found in some other cases, provoking the stomach, stating my inability to take more of it. He then had it prepared as I requested, substituting aqua menth.—R. Strychnia gr. $\frac{1}{4}$; aqua menth., mucilage, $\ddot{\text{a}}\ddot{\text{a}}$. 3ij. Mix. Of this a teaspoonful was given immediately; in a few minutes I felt it would do its work. From my previously exhausted condition, the Dr. feared that farther discharges would so sink me as to render reaction impossible, and to aid in preventing that, a dose or two of the anodyne mixture were given, with anodyne and astringent suppositories; the evening of the 23d, the 24th, and 25th were blanks to me; four doses of the strychnia of the last formula were taken. On Monday morning, the 26th, I awoke to consciousness and a stomach that would retain nothing. Ice, juleps, camphor and mint water, creasote, etc., returned as soon as swallowed. Sinapisins and spice-bags all proved useless. A blister was applied, and a few hours after a teaspoonful of the hydrocyanic acid mixture, settled the difficulty. On Tuesday drinks were allowed in small quantities, Dr. S. having left immediately after giving the hyd. acid, under the full impression that that too would fail, and he should see me no more in life. In my case, as in the case of the two Germans above related, the remedy had been pushed farther than necessary. All expedients failed to allay the over-excitement of the sympathetic, until the hydrocyanic acid was administered; in my case it acted more promptly than in any others in which I had administered it, probably owing to the fact that I got a larger dose; the Dr. having given me one-third of the mixture, when he intended it should be one-fourth.

Much more might be added, but it would be asking too much of your valuable space. In relating cases, the object has been to give bad cases, to show fully the action of the remedy; from the details given a correct judgment can be formed; the minutiae of treatment must be regulated by each practitioner, according to the peculiar type which the disease assumes in different localities. General principles are what I have here aimed at exposing; the reader must draw his own deductions, and shape his practice according to the cases he has to deal with.

CUMBERLAND, MD., December 7, 1853.

ART. VII.—*On the Internal Use of Chloroform.* By HENRY HARTSHORNE,
M. D., of Philadelphia.

SINCE 1848, when some account was given in this Journal of experiments with chloroform, internally administered, it has been variously and extensively used by practitioners in different parts of the world. It is now generally recognized as being, when so used, a narcotic of the mildest and yet most powerful character, and as possessing in its pungency, also, a quality which recommends it in some cases above other anodynes. While the untoward accidents which have followed its use in many cases as an anæsthetic by inhalation have produced a growing distrust of its safety in that capacity, experience has shown that, taken into the stomach, it is as totally free from danger as any other drug; and its employment is destined to be yet much more widely extended.

The object of this article is chiefly to make some remarks upon its *dose* and *mode of administration*. Many practitioners within the writer's knowledge hesitate, from their recollection of its power as an anæsthetic, to give it in doses of more than a few drops; and as the drop is exceedingly small, such doses are really often insignificant. The writer can assert, from positive experience, that a fluidrachm of chloroform, taken by the stomach, is not more than equal, in soporific effect, to 30 or 35 drops of laudanum. In doses of 50 to 75 drops (about 15 minims), I have given it every half hour for several hours together. It differs from the opiate preparations in the promptness of its hypnotic action, the much shorter period of its duration, a less degree of cerebral oppression, and the absence of all stimulus to the circulation. It might be called a "diffusible narcotic," comparing in this respect with opium as ammonia does with alcohol. To produce much effect with it, repeated doses, at short intervals, will be necessary.

The advantages which the above peculiarities afford in many instances of disease will suggest themselves to every physician. We may leave them to do so, proceeding to remark briefly upon its mode of administration.

The pungent property, already alluded to, causes it to require plentiful dilution, which is, of course, facilitated by the addition of some demulcent. Perhaps the *orgeat syrup* is the best. Every fluidrachm of chloroform should have at least two fluidounces of water with it when taken; and it will need, if in ordinary gum mucilage, considerable agitation to resuspend the particles immediately before swallowing. When taken in aqueous mixture alone, however, unless in very small doses, it produces nausea with some persons. This is entirely prevented by the addition of a strong aromatic, or, still better, by giving the chloroform in aromatic *tincture*. From the ready solution and kindred action of camphor with chloroform, their combination has become a very common one. For many purposes, however, a still better preparation is

a sort of chloroform paregoric, or compound tincture of chloroform, *e. g.*: R. Chloroform f $\ddot{\text{z}}$ ij; sp. camph. et tinct. opii, $\bar{a}\bar{a}$ f $\ddot{\text{z}}$ iss; Ol. cinnamom. gtt. viij; alcohol f $\ddot{\text{z}}$ ij. M. et fiat tinctura. Dose, from 5 to 30 minims, or more, as required.

The most admirable effects have been witnessed from the administration of chloroform, as above combined, in malignant cholera. In the summer of 1849, my attention was first called to it while attending a very severe case of cholera with the late Prof. W. E. Horner. The prompt and signal restoration accomplished in that case, from a state of collapse, was evidently due to the exhibition by Prof. Horner, every five minutes, of a few drops of a combination of chloroform, oil of camphor, and laudanum, with ice, and warm frictions externally. The writer's conviction was very strong that the *short interval* between the doses was an important item in the treatment; and in pursuing the same plan in a number of subsequent cases, several of which were of the most alarming violence, an extremely gratifying success was obtained. The opinion has thus been formed, that no other plan of treatment gives so much promise in the management of malignant cholera as a combination of powerful yet mild antispasmodics, such as above described, with ice, internally, and persisting external stimulation. It may be mentioned that the writer has added, with apparent advantage in a number of cases, sp. ammon., and occasionally creasote, in minute doses, to the preparation above designated as a compound tincture of chloroform. A formula of a very similar character is now quite extensively used as a gentle carminative and anodyne, or antispasmodic, and may be often substituted with benefit for the common paregoric.

REVIEWS.

ART. VIII.—*The Transactions of the American Medical Association.* Instituted 1847. Vol. VI. Printed for the Association, Philadelphia, 1853. 8vo: pp. 869.

WHATEVER differences of opinion may be entertained as to the propriety of a change in the organization of the American Medical Association, or in regard to the proper course to be pursued by it with the view to effect a reform in medical education and the establishment of a higher standard of attainments for admission to the doctorate, all must confess that it has, at least, issued a series of printed *Transactions* of a highly creditable character, each successive volume of which has excelled the preceding in the general interest and intrinsic value of its contents. We would not insinuate, however, that the entire labours of the Association have been confined to the publication of six annual volumes of *Transactions*, creditable as these unquestionably are. Even they who look upon it, and upon its acts, with the least favourable eyes, will not, we think, deny that, however unsuccessful it may as yet have been in reforming the medical schools, and closing the door of admission into the ranks of the profession against the illiterate and un instructed, it has, nevertheless, exercised upon the profession at large, throughout the greater portion of the United States, a decidedly beneficial influence. By the attention it has directed to the present condition of medical instruction in this country, and the requirements for graduation as a doctor in medicine in our several schools, and the inquiry it has excited into the means best adapted to promote the welfare of the profession generally, much good has been already effected. While, by the impulse it has given to the organization of the medical men of our country into county and State societies, and, in this manner, enabling them to realize their community of interests, and the importance of co-operation in the maintenance and promotion of those interests, the Association has brought into action agencies the working of which cannot fail ultimately to elevate the character and standing of our profession, and thus to augment its efficiency. It has, at the same time, through the organizations it has already been chiefly instrumental in effecting, caused the collection and comparison of the observations of a large number of practitioners upon the character, causes, and proper treatment of the diseases incident to the different sections of the United States, and the presentation of these, that would otherwise have been lost to the profession at large, as a valuable contribution to the common stock of medical knowledge.

The constitution of the American Medical Association may be defective—it may not always pursue the wisest course for the attainment of the great objects for which it was instituted; still, no one can in truth deny that it has already worked out much of good for our profession, and we may add that it is our firm belief it is destined to effect still more.

To those who affect to believe that the labours of the Association have resulted in nothing, we would say, in the language of Dr. Wellford, from his address, delivered at the opening of its last annual session :—

"But, gentlemen, if it be nothing to have reduced an amorphous, chaotic, professional mass to something like symmetry and order; nothing, to have awakened attention to important defects in preliminary and medical education, and, in some measure, to have removed them; nothing, to have caused the establishment and reorganization of local and State medical societies; nothing, to have caused the enactment of wholesome laws, both by the Federal and State governments; nothing, to have produced scientific papers of acknowledged ability and erudition: nothing, to have awakened dormant talent, and elicited a vernal bloom which promises a rich harvest of autumnal fruit; nothing, to have acquired a reputation which renders even its membership a title of honour and distinction; is it also nothing, by unaided, intrinsic moral power, to have bound in one code of medical ethics, thousands of men in every section of this wide Union, each one free to act according to his own individual views, but yielding them in cheerful obedience to the opinions of the Association, with as much deference and submission as if it were armed with the power and terrors of penal law? Is it nothing, unendowed with the compulsory authority of legal enactment, or the seductive influence of mileage and per diem allowance, annually to convoke such an assembly as I have now the honour to address? Such a congress, of such materials, and under such circumstances, presents a spectacle of moral beauty, to which the opponents of medical reform cannot be insensible. It must command their respect and admiration, even if it fail to secure their co-operation. I know not, gentlemen, what may be the effect on others of an occasion like this, but for my single self, when I thus recognize the denizen of the city and the forest; him of the frozen north, and of the sunny south; him of the mountains, the rivers, and the prairies of the west, with him from the borders of the broad Atlantic, bringing their various opinions and prejudices, and casting them together as a sacrificial offering on the altar of science and professional patriotism; when I see them animated by the same honourable and lofty impulse, and, in fraternal harmony, uniting their efforts to attain the same grand results, I feel an honest pride in my profession and my country, and an abiding confidence that to such sons the high destinies of both may be safely intrusted."

As journalists, our concern is less with the internal polity and general reformatory measures of the Association, than with the results of its labours, as exhibited in its published *Transactions*. We pass by, therefore, the minutes of its business proceedings, and all discussion as to the policy of the very decided conservative feeling evinced at its last session, in reference to the radical changes in its organization presented for adoption; as well as any inquiry into the probable influence upon its usefulness and permanency of an attempt, in the present unorganized condition of the medical profession throughout a large portion of the United States, to restrict the representation to delegates from State or county societies; and shall proceed at once to consider the several reports and essays embraced in the volume before us.

The reports of the special committees are preceded by the very earnest and eloquent "Address" of the late President of the Association, Dr. Beverley R. Wellford, of Virginia, delivered at the opening of the session of 1853.

The address commences with a brief sketch of the history of the Association from its institution in 1847 to the commencement of the present year, with a few remarks on the leading features of its organization, and then enters upon an examination of what the Association has already effected towards the accomplishment of the leading objects for which it was instituted. Dr. Wellford treats this portion of his subject with great ability. He believes that the Association has accomplished much, but is far from supposing that every necessary reform in our profession has as yet been achieved by it.

"It may," he remarks, "be fairly assumed, that the American Medical Association has thus far succeeded to an extent fully as great as ought to have been anticipated. Nevertheless, it is admitted that much remains to be effected

before its power is fully developed, or its objects and its aims are fully attained. Dependent as it of necessity is on the co-operation of the individual members of the profession, it is not possible that the Association can consummate its designs, or attain the zenith of its power and influence until the medical men of every neighbourhood are formed into local societies, and State societies are organized in all the States of the Union. The more uniform the organization, the more effective it will prove in its practical working, and uniformity can only be obtained by some plan of general application recommended by this body. The central orb of medical organization in the United States, it must throw its light on the periphery before the reaction can be felt, and the concentrated influence of the whole profession act as a combined and powerful unit. We have the material—abundant, effective material—but as yet unavailable, and, to a great extent, unappreciated, because it has not yet been illuminated by the light of medical progress. That light must emanate from this Association, and it will be reflected and thrown back upon its parent, from every hill and valley in the land."

In proceeding to a brief review of the labours still to be accomplished by the Association, Dr. Wellford enforces the necessity of that complete and uniform organization of the physicians in every portion of the United States, above alluded to; an organization that shall constitute each and every one of them "an integral part of the great whole," so that the interest of the individual and of the mass shall be identified, and made mutually to sustain and promote each other.

Another object to which reference is made by Dr. Wellford, as one of primary importance for the advancement of medical reform, is a proper regulation of the license to practice—the investiture of the profession with the right to exclude from its honours those, at least, who wear its livery without acknowledging its authority; to draw the line of demarcation between the true doctor of medicine and the pretender and charlatan. The attention of the Association is likewise directed to the necessity of State legislation to restrain the domestic adulteration of drugs and medicines. The address concludes with an appropriate and feeling allusion to the loss the Association has sustained by the death, since its preceding session, of more than one of those who then participated in its councils, and "devoted their influence and their gifted intellects to the advancement of medical reform." Of these are especially named "the calm and philosophic DRAKE, the eminent and learned HORNER."

Melancholy as was the task of communicating these losses to the delegates assembled at the last session of the Association, how much more so will be the task of him upon whom the duty devolves of opening the ensuing session; who will come with the heavy tidings that, since the Association last assembled, by a calamity as unexpected as it was swift and fatal, seven of its members had been swept from existence in the midst of health, and whilst pursuing a career of usefulness as honourable to the profession of which they were cherished members, as it was valuable to the communities amid whom their lot had been cast.

The entire address of Dr. Wellford is deserving of the serious attention of every American physician. Its extensive circulation would be a means, we are convinced, of placing the true character and sphere of operation of the Association more clearly before the profession, and of removing some prejudices and misconceptions in regard to it, which, from whatever cause they may have originated, have been propagated, it is to be feared, from motives that originate less in a love of truth and justice than in selfish and interested feelings.

The first of the reports, as they are arranged in the volume before us, is

that of the Committee on Medical Education. The report is drawn up by the chairman of the committee, Dr. Z. Pitcher. It is marked throughout by a manly independence of thought on the important points involved in the general subject of which it treats, and much sound sense in the leading conclusions to which its author has arrived. It may, perhaps, disappoint, on the one hand, such as had formed for themselves an ideal model of a perfect system of medical education, which, without the slightest consideration as to the peculiar characteristics of our national character and institutions, and the state of society throughout a large portion of our widely extended territory, they had hoped to see speedily carried into effect, through the instrumentality of the American Medical Association; and on the other hand, induce those who look upon the present condition of our leading Medical Schools as demanding little if any improvement, to exult in the supposed abandonment by the Association of the high ground assumed by it, in its outset, in respect to medical education. By a careful perusal of the report, however, it will be perceived, we think, to be as positive in maintaining the necessity of arousing "the profession of the country to such an effort as shall shake from itself the reproach of ignorance and of quackery, by which it has been humbled in its own estimation, and abased in that of its fellow-men," as either of its predecessors.

The aim of its author would appear to be, to point to the means by which, in his estimation, reform in medical education may, under the existing state of things in the United States, be most certainly and speedily promoted.

"Your Committee," he remarks, "have, as they conceive, sufficiently elevated ideas of the mission which the medical colleges now in being are designed to fulfil, and feel an honourable pride in tracing their professional paternity to this source. They also feel that one thing more is wanted as a remedy for the evil just referred to (the prevalence of quackery), and that is the establishment of free colleges for the preparatory and professional education of the young men now scattered over the wide and half-cultivated domain of the West."

To show that such a measure can be carried into effect, notwithstanding the popular character of our political institutions, the report refers to the organization of the University of Michigan, which is the only institution in the country endowed by Government and regulated by State authority. After giving a brief sketch of the course of study pursued, and the regulations and requirements for graduation, established in this institution, the report proceeds as follows:—

"We are aware that former committees have objected to an increase in the number of medical schools, so situated as not to give to their pupils the benefits of hospital practice; the reasons for which, at first sight, appeared entirely satisfactory, and may do so now to a large majority of the Association. We believe that this subject should be examined from two distinct points of view, one of which exhibits the character and qualification of those who graduate at the best schools, and the other, the character and influence in society of that other multitude, who choose to exclude themselves from all these advantages, but come, nevertheless, by some illegitimate entrance, into the great professional amphitheatre. If there was a necessity for studying this subject only from the first point of view—of looking only to the effects produced upon the pupil by his attendance upon the college lectures and the hospital clinique, and if we could leave out of sight and out of mind the great number of practitioners with which the country would be filled—if the elementary schools of medicine were any less accessible than they now are, there would be no division in sentiment; no dissent from the opinions expressed by preceding committees, touching this matter. If there were in existence laws, which could

be enforced, for restraining irregularities in practice, and if none dared exercise the functions of the physician except he were regularly invested with the baton of office, there would be great propriety in limiting the number of schools, and, at the same time, increasing their demand upon the mental energies of the pupil, as conditions precedent to receiving a degree.

"In the absence of such laws, and for the want of any power to bear upon the profession, other than the power of opinion, the wisest course, in the judgment of your Committee, would be to extend the hand of fellowship to all such schools, as, having a competent faculty, shall give a course of lectures on general, comparative, and descriptive anatomy; physiology, and its application to pathology; on chemistry, with its relations to pharmacy and toxicology; on *materia medica* and therapeutics; the principles of surgery; obstetrics, including the doctrine of ovology; and on the principles and practice of medicine.

"If such schools could be restricted in conferring degrees to the grade of Bachelor of Medicine, a practical and valuable distinction would be made between those which teach the elements of medical science, and that other class, having their seat in the great commercial cities, and whose propinquity to hospitals enable them, if their advantages are rightly improved, to combine the inculcation of principles with their practical application and elucidation."

This leads the Committee to a consideration of the subject of clinical instruction. Its great importance as a means of preparing the student for the successful practice of his profession is admitted in the outset.

After a few pertinent remarks on the total inefficiency and absurdity of the system of clinical instruction as now generally pursued in the hospitals of the United States, the report holds the following language, in the correctness of which we fully coincide :—

"One object to be accomplished in bringing together the pupil and the patient is to train the perceptive faculties of the student; to educate, in fact, his sense of touch, his eye, and his ear. How much progress is made in this process, except by the resident pupil of a hospital, is very well known by students and teachers.

"Because the end has not yet been attained, we would by no means relinquish the pursuit. We would reconstruct our hospital organizations, and adapt them to the wants of the time. This could be done by erecting them into schools of practice, with a special faculty, whose plan of instruction should have a direct relation to the cases in their wards, so that each one should become an illustration of the text of the professor. Schools thus constituted, and authorized to confer some distinctive honour upon their graduates, would fill a hiatus in our system of medical teaching. A supplementary school of practice, conducted on the plan proposed, would obviate the objections now made to clinical instruction, and do away very much with the sentiment or feeling of jealousy entertained towards the medical schools in the country, which not only do great good, but prevent infinite evil. How they do this is best understood by those members of the Association who come from sections of the country sparsely populated. They are best aware how many young men without their instrumentality, would pass from the office of the private preceptor, without the advantages these schools can give them, wanting in that professional *esprit de corps*, which the associations of the anatomical theatre and the lecture-room do so much to foster the growth of in the breast of every graduate who recognizes the influence of a medical *alma mater*. This Committee, then, would not discourage the organization of medical schools in different sections of our country, but would foster them as places fitted and designed to teach the elements of the science of medicine, and trust to the influence and example of the private instructor, who is emphatically the true clinical teacher, and to the hospitals, as schools of practice, to teach the art of applying the principles which the faculties of these schools have imparted. In this way the number of uneducated young men now permitted, by the absence of salutary laws in all the States of the Union, with only one exception, to exercise the functions of phy-

sicians, will annually diminish, and be replaced by those having a higher sense of professional honour, because a wider range of professional attainments."

The report closes with some very sound remarks on the necessity of a more thorough and extended course of preparatory study before commencing that of medicine.

The following resolutions are appended:—

"1. That the Association reaffirm its formerly expressed opinions on the value and importance of general education to the student and practitioner of medicine, and that it would gladly enlarge its rule on this subject, so as to include the Humanities of the schools, and the natural sciences.

"2. That, in the opinion of this Association, a familiar knowledge of the elements of medical science should precede clinical instruction.

"3. That, in order to accomplish the latter, the hospitals, when they shall be elevated to the rank of schools of practice, and the intelligent private preceptor, are the most effectual instrumentalities to be employed."

The Report on Medical Literature, which follows, is by N. S. Davis, M. D., of Illinois.

It is a well-written and very sensible report, doing full justice to the general character of our native medical literature, not losing sight of its more prominent defects, and presenting a few sound practical suggestions for its improvement.

We should be pleased to quote largely from this report, but fearing to extend this review to an unreasonable length, we shall restrict ourselves to the following remarks of Dr. Davis on the general character of our medical periodicals.

"Judging from the comments made by the several committees on medical literature heretofore appointed by the Association, we are constrained to believe that a decided improvement has taken place in the original department of medical journalism during the last two years. Certain it is that the use of the microscope, and its application to physiological and pathological researches have become familiar to a much larger number of the members of our profession; and an increasing disposition to enter upon those inquiries requiring original experiments and a thorough knowledge of organic chemistry, is plainly visible to the careful observer. That much of this is due either directly or indirectly to the influence of this Association, and its auxiliary Societies in the several States, is undoubtedly true.

"But while we have derived much pleasure from the examination of some portions of our periodical literature, we are constrained to acknowledge that other parts of it are extremely faulty, if not entirely worthless. Thus, we find some articles embodying allusions to cases of disease or injuries, so meagre and incomplete in details that neither the writer nor any one else can deduce a conclusion from them; or, in some instances, be certain of the nature of the disease or accident intended to be described. These seem to answer no other purpose than to fill a certain space in the *Journal*, and afford the author the pleasure of seeing his name in print. Another class of articles, equally defective, and far more mischievous, are made up of what is intended for a report of individual experience in the treatment of some particular disease, and hence are generally regarded as *eminently practical* in their character. They most frequently commence by stating the residence of the writer, and the fact that within a certain length of time a particular disease, or class of diseases, has prevailed to such an extent that 'a specified number of cases has come under his own observation.' Perhaps a brief description of some of the leading symptoms is given, couched in the most general terms; and sometimes a vague opinion is expressed in regard to the causes and pathology of the disease. An outline of the treatment adopted, with its effects, stated in terms equally general and indefinite, completes the article. The object of such writers seems to be simply to set forth the efficacy of some particular remedy in the treatment

of a particular disease. Hence, they omit altogether a clear statement of the topography of their locality; the particular season when the disease was most prevalent, the character and habits of the class most affected, and such an accurate and detailed description of the disease, with its effects on the various organs and functions of the system, as will enable the reader either to judge correctly of the true relations of the remedies employed to the course and termination of the disease, or to compare it with the phenomena of the disease called by the same name in his own locality."

We pass over the judicious remarks of the reporter on the general character of the review department of our medical journals—a most important one if faithfully and ably conducted.

Dr. Davis maintains that we have a respectable and valuable medical literature of our own, which is every year rapidly increasing in extent and importance. He denies the charge that in medicine we are mere copyists and servile followers of our transatlantic brethren.

"Deriving," he remarks, "our existence as a nation from Great Britain, existing, indeed, for a long period as a part of that empire, we necessarily inherited at our birth a portion of her science and her literature, which furnished the basis for our own. And, for a long period, also, the circumstances and habits of our countrymen, and especially of the members of our profession, were not favourable to the cultivation of the more abstruse and experimental branches of science. Hence, for the advancement of experimental physiology, animal chemistry, and the minuter researches in morbid anatomy, we have been mainly indebted to Europe. But, notwithstanding this, we have had a medical literature of our own; not borrowed, not a mere imitation, but originally and truly American, from the days of Benjamin Rush to the present time. As we should expect, in a thinly populated country, subject to the prevalence of acute diseases of an active grade, the chief attention of the profession was concentrated on matters of direct practical interest and application. A direct inquiry into the history, causes, and treatment of the more important diseases would be the first subject of the practitioner.

"The same circumstances that were unfavourable to the carrying on of abstruse and experimental investigations were equally adverse to the production of extensive treatises on any of the departments of science. Hence, as the attention of the profession was fixed chiefly on topics of immediate practical interest, it naturally found its expression in essays, monographs, and periodical journals, rather than in volumes requiring more leisure for their preparation, and involving greater expense in their publication."

On the "Agency of the Refrigeration produced by Upward Radiation of Heat, as an Exciting Cause of Disease." The report on this important question in etiology, presents a very fair abstract of the philosophy of the subject, and of the leading facts having a direct relationship with it. It is calculated to direct attention to a frequent cause of disease, that has heretofore been too much overlooked, but which, we suspect, will be found, upon a closer investigation, to play a more important part in the production of what have been denominated malarious diseases, than any supposed poisonous emanations from the soil, or miasms resulting from the decomposition of vegetable matter. The efficiency of the refrigeration produced by upward radiation of heat as an exciting cause of disease, has been clearly established, but all the circumstances under which its morbid influence is manifested have not been determined. To those who have the opportunities presented to them for its prosecution, a careful investigation into the extent of its operation as an etiological agent, the subject is recommended as one favourable for the development of highly interesting and valuable results.

The report before us, although an able exposition of the present state of our knowledge in respect to it, possesses but little originality; it is to future ob-

servations that we must look for a full and practical development of the subject in its relationship to the causation of disease.

The next report in order is that of Dr. S. D. Gross, of Louisville, Kentucky, on "The Results of Surgical Operations in Malignant Diseases." This is a most able and valuable report on a question of the deepest interest to every surgeon; in elucidation of which, it presents all the more important facts and observations derived from the writings of the ancient and modern authorities, and from the communications of numerous contemporaries, with a series of practical deductions that render it at once a faithful and instructive monograph on one of the most perplexing points connected with the surgical treatment of malignant diseases.

The first part of the report is devoted to general observations on the nature, objects, and difficulty of the inquiry to which it is devoted; on the origin of malignant diseases—their hereditary nature—their latency—their reproductive tendency after removal; on the circumstances contraindicating surgical interference—general rules respecting the manner of conducting the excision of malignant tumours, and the treatment after the operation. Each of these points is investigated with the utmost candour; truth alone, irrespective of a preconceived hypothesis, being the end evidently aimed at by the author. It is admitted that the results arrived at are often rather negative than conclusive—that Dr. Gross has been more frequently obliged to indicate our entire ignorance on those points essential to a satisfactory settlement of the question as to the propriety of surgical interference in diseases presumed to be of a malignant character, than to lay down positive rules for determining the probable result of such interference in any given case; still, the result of his investigation is valuable, not only by directing attention to the insufficiency of our data for the formation of a correct diagnosis of malignant diseases, but, also, by teaching us caution and circumspection before determining on the excision of diseased parts, and still more, in giving any positive prognosis as to the ultimate favourable result of the operation.

"It need hardly be said," remarks Dr. Gross, "that the subject intrusted to the Committee is one of great perplexity. On every side, in fact, it presents difficulties which, in the existing state of the science, are absolutely insurmountable, notwithstanding the numerous attempts that have been made to remove them. The information collected in this report, if useful at all, is so rather negatively than positively. It shows what has been done, rather than what has been achieved. It proves that this department of the healing art has been more 'laboured than advanced.' In short, it exhibits the humiliating evidence that our professional brethren, although they often wandered in quest of Truth, have hitherto failed to find her; and that the great subject, in point of fact, remains precisely where it was in the time of Hippocrates, whose wonderful sagacity induced him to declare, that malignant diseases, by whatever name they may be known, or whatever organ they may attack, never forgive, but that they are always incurable by the knife and escharotics, and sooner or later destroy their victim.

"Much of the perplexity here alluded to, grows out of the difficulty which attends the diagnosis of malignant diseases and malignant tumours. Few men, whatever may be the amount of their science, experience, and tact, are able at all times, or in all cases, to discriminate, with positive certainty, between these affections and those called non-malignant, benign, or innocuous; while the great majority find themselves utterly bewildered at every step of the inquiry. It is not difficult, therefore, to account for the errors which are constantly committed in practice, and to explain the reason why a tumour or disease which one surgeon regards as malignant, should be considered as benign by another, and *vice versa*. The daily experience of medical men, and the records of the profession, abundantly verify the truth of these remarks. The mammary gland

has been sacrificed a thousand times for diseases supposed at the time to be cancerous, but which, upon a more careful examination, proved to be nothing but 'milk-knots,' scrofulous swellings, or chronic abscesses. A testicle, affected with saccocoele, or chronic enlargement, has frequently shared a similar fate. There is not a museum or private collection anywhere in the country that does not afford multiplied proofs of the truth of this statement.

"Another source of difficulty is, that a majority of the recorded cases of malignant diseases are deficient in necessary details; thus rendering it impossible to use them for statistical purposes. This remark applies both to our periodical literature, to our systematic treatises on surgery, and to our monographs on cancerous affections. As a proof of the truth of this remark, I may here state that one of the most interesting, and, in other respects, valuable works of the present day, the recent production of Dr. Bennet, Professor of Medicine in the University of Edinburgh—on cancerous and cancrinoid growths—hardly contains a solitary case available to our present inquiry. While it describes with great minuteness the histological characters of carcinomatous and cancrinoid diseases, as they appear in different tissues and organs of the body, it generally takes no other notice of the patient after operation than to say that he was discharged cured at such a time; meaning of course, merely that his wound had healed, and not that he had been permanently cured of his cancer, a circumstance of which no operator can justly judge in so short a period.

"It is for those reasons, that the whole subject of operation for malignant diseases must be investigated *de novo*, before we can hope to arrive at any satisfactory conclusions respecting it. The next quarter of a century will, if practitioners are true to themselves, and to their profession, definitively settle this long agitated, important, and momentous question. Let every description of cases be subjected to the knife and to escharotics; let every circumstance, even of the most trifling character, regarding them, be faithfully recorded; let the morbid structure be carefully examined with the microscope; and, finally, let the patient be diligently watched with a view to his ultimate fate; and a thousand such cases, brought together and analyzed, will forever put the matter at rest. All conjecture will then cease, and truth will stand forth, like a beacon light, to guide and direct the practitioner in the true path of science."

The second part of the report presents a series of general observations on cancer, in relation to the results of operations, embracing facts, and statistical tables contributed by distinguished American surgeons, and gleaned from American and European authors; while the third part of the report treats of cancer of particular organs, in the same relation, embracing the views as well of the most ancient authorities, as of the more recent authors and practitioners of America, England, France, Germany, Holland, Denmark, and Italy; more especially in reference to cancer of the mammae.

Admitting the correctness of Dr. Gross's definition of a malignant disease, it must be evident that the question in regard to the propriety of its extirpation by a surgical operation, is limited to this: How far shall we be able, by the removal of the diseased part, to prolong the patient's life; and secure to him, for a shorter or longer period, an interval of comfortable existence? The idea of effecting by means of a surgical operation an entire eradication of the disease is precluded by the very terms of the definition.

"A malignant disease is," according to Dr. Gross, "one which, whatever may be its origin, situation, or structure, has a disposition, sooner or later, to destroy, not only the part which it occupies, but also the system at large, and, consequently, as a necessary corollary, the life of the patient. In other words, all its tendencies are to mischief and disorganization. It never forgives or relents; it never disappears spontaneously; and it is never cured by medication, not even by excision, except, perhaps, in very rare cases."

In collecting, collating, and arranging in a methodical form the facts and observations embraced in the second and third parts of this report, Dr. Gross

has done a good work. The practical surgeon will here meet with much that will prove valuable in assisting him to form a decision as to the propriety of an operation in cases of disease having a malignant aspect, and which he could not otherwise have obtained without laborious research amid many books, some of them not easy of access to all, and through the pages of the professional journals, both foreign and domestic.

To understand the entire scope and value of the report under consideration, it must be attentively perused as a whole; no clear idea of it can be conveyed by an abstract, nor yet by an occasional quotation from its different sections. As in all investigations of the nature of that undertaken by Dr. Gross, the questions involved in which must be solved by testimony derived solely from experience and observation, the amount and character of the evidence adduced is of primary importance; consequently, to judge of its relevance and conclusiveness, it must be examined in detail. We close, therefore, our brief notice of the report of Dr. Gross, by recommending it to the careful consideration of American surgeons, merely appending the general conclusions at which its author has arrived.

"From the facts and statements which have now been presented," he remarks, "embracing the opinions of many of the most intelligent, experienced, and distinguished practitioners in different ages, and in different parts of the world, the following conclusions may be legitimately deduced:—

"First. That cancerous affections, particularly those of the mammary gland, have always, with a few rare exceptions, been regarded by practitioners as incurable by the knife and escharotics. This opinion, commencing with Hippocrates, the father of medicine, has prevailed from the earliest records of the profession to the present moment. Nature never cures a disease of this kind, nor can this be effected by any medicine or internal remedies known to the profession.

"Second. That excision, however early and thoroughly executed, is nearly always, in genuine cancer, followed by a relapse, at a period varying from a few weeks to several months from the time of the operation.

"Third. That nearly all practitioners, from the time of Hippocrates to the present day, have been and are still averse to any operation for the removal of cancerous tumours after the establishment of ulceration, rapid growth, firm adhesions, organic change in the skin, lymphatic invasion, the cancerous dyscrasy, or serious constitutional derangement; on the ground that, if had recourse to under these circumstances, the malady almost inevitably recurs in a very short time, and frequently destroys the patient more rapidly than when it is permitted to pursue its own course.

"Fourth. That in all cases of acute carcinoma, or, in other words, in all cases of this disease attended with very rapid development and great bulk of the tumour, extirpation is improper and unjustifiable, inasmuch as it will only tend to expedite the fatal result, which, under such circumstances, always takes place in a very short time.

"Fifth. That all operations performed for the removal of encephaloid cancer and its different varieties, are more certainly followed by rapid relapse than operations performed upon scirrus or hard cancer.

"Sixth. That in nearly all operations for cancerous diseases hitherto reported, the history has been imperfectly presented, being deficient in the details which are necessary to a complete and thorough understanding of the subject in each case. This remark is particularly true in reference to the diagnosis of the malady, the minute examination of the morbid structure, and the history of the case after the operation, as to the period of relapse, the time and nature of the patient's death, and the result of the *post-mortem* examination.

"Seventh. The cancerous affections of the lip and skin, now usually described under the name of canceroid diseases, are less liable to relapse after extirpation than genuine cancerous maladies, or those which are characterized by the existence of the true cancer-cell and cancer-juice.

"Eighth. That although practitioners have always been aware, from the earliest professional records, of the great liability of cancer to relapse after extirpation, a great majority of them have always been, and still are, in favour of operating in the early stage of the disease, especially in scirrhus, before the tumour has made much progress, or before there is any disease of the lymphatic ganglions, or evidence of the cancerous cachexy.

"Ninth. That many cases of tumours, especially tumours of the breast and testicle, supposed to be cancerous, are in reality not cancerous, but of a benign character; and, consequently, readily curable by ablation, whether effected by the knife or by escharotics. It is to this circumstance that we must ascribe the astonishing success which is said to have attended the practice of Hill, of Scotland, Nooth, of England, and Flajani, of Italy.

"Tenth. That all operators insist upon the most thorough excision possible; removing not merely the diseased mass, but also a portion of the surrounding and healthy tissues, as well as all enlarged and indurated ganglions.

"Eleventh. That the practice has always prevailed, and still obtains, to save, if possible, a sufficient amount of healthy integument to cover the wound; and to unite, if possible, the wound by the first intention; on the ground that these precautions will tend much to retard, if not to prevent, recurrence of the disease.

"Twelfth. That much stress is laid by writers upon a properly regulated diet, and attention to the bowels and secretions after operation, as a means of retarding and preventing relapse.

"Thirteenth. That there is no remedy, medicine, or method of treatment, which has the power, so far as we are enabled to judge of its virtues, of preventing the reproduction of the morbid action after operation, no matter how early or how thoroughly it may be performed.

"Fourteenth. That life has occasionally been prolonged, and even saved, by operation after relapse, as in some of the remarkable cases mentioned in a previous part of this report; but that, as a general rule, such a procedure is as incompetent to effect a permanent cure as a first extirpation.

"The following points may be considered as of an unsettled character; at all events, opinion respecting them is much divided, and farther observation is necessary before they can be positively determined, either affirmatively or negatively.

"First. Excision is of doubtful propriety in all cases in which the disease is of hereditary origin, or where it occurs in several members of the same family.

"Second. It is doubtful whether an operation should be performed when the patient is very young and the disease is of rapid growth. There is reason to believe that surgical interference, in such a case, will only expedite the fatal issue, which is generally inevitable.

"Third. It is problematical whether an operation should be performed when the disease is attended by suppression of the menses, or by great irregularity of this discharge.

"Fourth. Not a few surgeons regard a resort to the knife as of questionable efficacy where there is a quickened state of the pulse, occasioned by the local irritation.

"Fifth. There appears to be no general agreement among surgeons as to whether extirpation is proper when there are two or more coexistent and accessible cancerous tumours.

"Sixth. It is supposed, but the fact is not established, that excision of carcinomatous tumours only tends to hasten the patient's death.

"Seventh. It is doubtful whether, as has been asserted by different surgeons, the prospect of a permanent cure is greater, all other things being equal, after an operation on an old cancer, than after an operation on a cancer of recent standing.

"Eighth. It has been stated by writers of great respectability, among others by Dr. Macfarlane, of Glasgow, that in robust women of sanguine temperament the reappearance of cancerous disease, and its subsequent progress, are

more rapid after operation than in nervous or lymphatic persons; an assumption demanding verification.

"Ninth. It requires to be proved whether excision ought to be performed in the ulcerated stage of malignant disease, as a means of prolonging life and of procuring comparative relief from suffering."

Only one of the eight committees appointed to report on the epidemic diseases of the different sections of the United States, was prepared to present a report at the last session of the Association; namely, that having in charge the report on the diseases of Tennessee and Kentucky.

The report is drawn up by Dr. W. L. Sutton, of Georgetown, Kentucky, the chairman of the committee, and it does him great credit for its clearness and methodical arrangement. From the materials derived from his own field of observation, and such as were furnished him by his colleagues and others, Dr. Sutton has presented a very interesting view of the topography and meteorology of different parts of the section of country embraced in his report, and of the more important of the diseases that prevailed there during the past year, with the treatment pursued in each by different physicians and in different localities. The account given of the several diseases is followed by a table showing the liability to them of different ages, sexes, and colours, as well as the mortality, and the average duration of treatment.

The report comprises much of an interesting and instructive character. We can at present notice only the account it contains of "An Anomalous Form of Fever, which prevailed at Memphis, Tennessee, late in the Fall of 1852."

The cases of this fever were observed at a time when scattering cases of cholera were occurring, and the reporter suggests whether they may not have been produced by the commingled influence of the malarious and choleraic poisons.

The disease made its appearance during the first and second weeks of November, being the week before and the week after the first frost of autumn.

"Its early cessation after the commencement of cold weather," it is remarked, "would seem to indicate its connection with *malaria*; but still it differed, in the malignity of its symptoms, from the well-marked cases of remittent fever, prevailing at the same time.

"The attack, in most of the cases, was not preceded by any marked indisposition. Chilly sensations, or a well-marked cold stage, of short duration, ushered in the disease. The reaction which followed was attended by intense heat of the surface, eyes more or less injected, circumscribed flushing of the cheeks, pain in the back, headache, pulse ranging in different cases from 90 to 120 beats in the minute, and continuing throughout the entire course of the attack, feeble and unresisting; the tongue at the commencement showed little evidence of departure from a normal appearance, but soon began to exhibit a line of dry and elevated papillæ, extending back along its centre, which continued to widen, of a dark brown colour, exhibiting a notable contrast with the more or less smooth and red tip and edges of that organ. The thirst for cold drinks was intense. There was tenderness on pressure over the epigastrium. Nausea, and frequent vomiting of pale green fluids were troublesome symptoms. The bowels were not moved except by medicine, when the dejections were quite fluid at first, and of a pale green colour. The urinary secretion was small in quantity, and highly coloured, giving off a strong ammoniacal odour. Hemorrhage from the nose was common; in a few it occurred both from the nose and bowels; and in one case, blood flowed from these, and likewise from the uterus, in considerable quantity two weeks after the last menstrual period. Sleeplessness and jactitation were absent in no instance. Little or no delirium present, intellect clear. No eruptions discoverable. Great prostration of the vital powers present in all. The duration of the fever was from five to fifteen days, most of the cases being convalescent during the first week. It had, like those called continued,

its morning periods of partial remission, but they were not the clearly-marked remissions of the paroxysmal fevers prevailing at the time.

"Taking into consideration the unpromising symptoms just detailed, the disease yielded more readily to treatment than would appear probable." "The remedy which in our hands appeared to exercise the greatest influence over the symptoms was *mercury*. After the bowels were evacuated, our reliance was placed on small doses of calomel and opium, repeated as often as the urgency of the symptoms in different cases required, and steadily persevered in until the disease yielded, which always took place on the first appearance of the constitutional effects of the medicine. As adjuvants, we employed local depletion and counter-irritants to the epigastrium. Iced lemonade, or pure iced water, or powdered ice, were freely allowed, and contributed not a little, we feel assured, in allaying gastric distress, and adding to the comforts of the sick. The great and infallible remedy in the treatment of periodic fevers, did not succeed in the disease under notice, though a full and fair trial was made with it in several instances. Even as a tonic, after the subsidence of the disease, quinia did not appear to answer so well as the mineral acids.

"The quantity of blood lost by some of the patients in this disease, and the manner in which the apparently prostrated vital energies sustained themselves under the loss, were truly astonishing. So far from being really injurious, we believe that the hemorrhage from the bowels was of signal service in relieving the congested capillaries of the intestinal mucous membrane, as no death occurred where this condition was present. To restrain the hemorrhage within the bounds requisite for the safety of the patient, as well as to impart the salutary influence which it is generally believed to exert over the diseases of the mucous membrane, the spirits of turpentine was administered in small and repeated doses, with most signal advantage in the cases we are considering.

"It is a fact worthy of note that, so far as we have been enabled to learn the subsequent history of these cases, not an instance of relapse has supervened since recovery, now four months after the attack."

The report of Dr. Sutton is followed by that of Dr. Charles D. Meigs, of Philadelphia, on "Acute and Chronic Diseases of the Neck of the Uterus."

This admirable report is not presented by its author as a complete monograph on the diseases of which it treats. It is perhaps, in many points, even more valuable than if such a character had been attempted to be imparted to it; presenting as it does, distinctly, the clinical observations, in respect to some of the more frequent of the affections of the cervix uteri, of one who has devoted years to their careful study, in a wider and more favourable field for their investigation than is furnished to the generality of practitioners. The report is confined simply to a plain statement of the subjects embraced in it, as they have appeared to its author, with the addition of such explanations, illustrations, and advices concerning treatment, derived from his personal experience, as have appeared to him may prove useful in aid of clinical practice in an important and extensive department of medical and surgical treatment.

The descriptions and explanations—the views and instructions of the reporter—are illustrated by the details of cases that have fallen under his own immediate notice, the whole being accompanied by very faithful coloured drawings from nature.

To one who will carefully study the report of Dr. Meigs, it is calculated to convey more precise and definite views of the subjects of which it treats, than most of the treatises formally devoted to their consideration; and at the same time to furnish him with useful practical hints, in reference to the exploration, diagnosis, and management of a class of diseases in which he is liable almost daily to be consulted, derived from the ample experience and matured observation of its distinguished author.

The entire report is a very favourable example of the mode in which the

results of individual experience may be rendered immediately available for the instruction of every member of the profession—in which the personal knowledge of one may be made the common property of all.

For his present contribution we return to Dr. Meigs our sincere thanks.

We fully concur in the earnest desire, expressed by him in the close of the report, that the class of cases therein treated of, may receive a greater share of attention from his medical brethren; so that they may less frequently than heretofore be permitted to accumulate in the large cities and towns, or in the hands of specialists. And we are convinced that the present very able report will contribute much to the realization of this desirable result.

With Dr. Meigs, we believe that, inasmuch

"As such disorders require no greater amount of particular information or dexterity than other surgical and constitutional maladies, it is within the ability, and is the duty of the brethren generally, to conduct them safely and gently to a satisfactory cure. In our opinion, it would be much more creditable that such skill and discrimination should belong generally to the whole profession, than for one or two individuals in a district, or in a great metropolis, as London or Paris, to acquire a notoriety which, to say the least of it, is scarcely enviable; since, among the humiliating services that physicians and surgeons are by their vocation obliged to render to the distressed, none can be more revolting to the sensitive mind than these. It might, perhaps, with consoling truth, be added, that few professional ministrations turn aside, with greater certainty and celerity, the attacks of disease, or arrest the shafts aimed at the existence of our clients."

It is not our intention to attempt an analysis of the report of Dr. Meigs. Its character is such, indeed, as to prevent this being done in any satisfactory manner. The information it imparts is rather in the form of demonstration than didactic or argumentative, and they who desire to profit by that information must study the entire text of its author, and the details of the cases presented by him, in connection with the pictorial illustrations by which they are accompanied. In no other way can the entire bearing and full value of his clinical remarks be correctly appreciated.

The report commences with a few pertinent remarks on the importance and propriety of ocular inspection by means of the metroscope, in order to the formation of a correct diagnosis of the several diseases to which the cervix uteri is liable.

Dr. Meigs prefers the simple metroscope of Recamier, which appears well adapted to bring into view the different portions of the uterine neck, and to facilitate the application of remedies directly to the seat of disease.

Allusion is made to the reaction of the productive organs upon the other members of the animal economy of the female; and the physiological hypertrophy to which the uterus is repeatedly subjected during the period of child-bearing, is pointed out as a predisposing cause of many of its diseases.

Some interesting demonstrations are also given of the normal size, form, and position of the womb, to serve as a standard of comparison by which to judge of its abnormal changes in these respects.

The first of the diseases of the uterine neck noticed in the report before us is inflammation. Adverting to the extreme frequency of leucorrhœa in the female, Dr. Meigs remarks:—

"Where the leucorrhœa consists only of vaginal products, it may safely be assumed that such leucorrhœa is of very little consequence as to the woman's general health. We speak here of the moderate cases. Indeed, affections of the vagina may, for the most part, be considered to interest very little the female constitution. Such a statement as this might excite surprise in

those who are accustomed to hear of the very debilitating effects of fluor albus; and it becomes necessary to qualify the statement by showing that, in those cases where the health has appeared greatly to suffer, the essential malady is not in the vagina, but in the neck of the uterus itself.

"While our own observation convinces us that profuse vaginal secretion is rarely met with in practice, we are equally convinced that some of the patients are rendered too moist by excessive activity of Duverney's glands, and that the most mischievous of leucorrhœal evacuations is that which comes from the canal of the cervix uteri.

"The muciparous glands of the vagina furnish either a thin watery mucus, or one of a creamy consistence, which, in other instances, is almost butyraeuous, or concrete. The excretion from the follicles and glands of the canal of the neck is always gluey or albuminous, and resembles fresh white of eggs; and when the patient, in describing the disorder, informs us that she discovers a slimy mucus, and especially if it appears at intervals of once a day or oftener, we may take for granted that she labours under inflammation of the neck of the womb. There is no apparatus in the vagina itself for the secretion of this albumen, but the abundant follicles of the canal of the cervix are devoted solely to such production; when the cervix is chronically inflamed, that production is much increased, to that degree, indeed, as to impart a character of sliminess to the discharges, and make it resemble *albumen ovi*. It very often happens, to observe this transparent viscid mucus to be wholly unaccompanied by any vaginal excretion; the substance coming away from the os uteri, and escaping upon the napkins, without the least admixture. In using the metroscope, the same albuminous matter is observed oozing forth from the orifice of the womb only, and so tenacious that it cannot be wiped away with the sponge."

According to Dr. Meigs, therefore, "the albuminous leucorrhœa is a sign of inflammation of the cervix, in which is included the canal, with its copious muciparous apparatus," and the case is to be treated accordingly.

The so-called raspberry coloured and other forms of inflammation, with simple hypertrophy of the neck of the uterus, are well described and clearly illustrated. Most of these inflammations and their accidents the reporter avers may be cured, and that speedily, by means of antiphlogistic contacts of the solid nitrate of silver, few of them being attended with the slightest ulceration.

"It is a common opinion," Dr. Meigs remarks, "and it is generally agreed to say so, that these affections are ulcerations of the womb, and there are people who seem never to fail to discover an ulcer upon making an examination with the speculum matricis. An immense experience in a populous metropolis—an experience greatly increased by the resort of numerous invalids from the country, and from the different United States, enables us, with confidence, to declare that an ulceration of the womb is among the rarest of disorders. We repeat the expression of our opinion, that these disorders and *framboisée* inflammations and hypertrophies of the cervix, have been misinterpreted, and accounted as ulcerations, which they are not, the superficies being covered with a delicate epithelium, yet so very delicate as readily to give way and suffer abrasion under improvident, unskilful manipulation with the tube or the sponge."

Dr. Meigs speaks of contacts of the nitrate of silver as antiphlogistic contacts; he thus explains his meaning in the use of that phraseology:—

"It is undeniable that a pencil of nitrate of silver applied to a soft, moist, living tissue, and held long in contact with it, will disorganize the tissue, and so prove to be a destructive contact. It is equally undeniable that a contact may be effected with such rapidity and lightness as to prove ineffective or indifferent, while there is another mode or force which does resolve inflammation with great certainty; and this is the antiphlogistic contact above spoken of. We feel, therefore, warranted to speak of such use of the nitrate of silver as

being either destructive or indifferent, or antiphlogistic contacts; and experience confirms the propriety of the classification; for, we meet with numerous examples of treatment that conclusively prove it is not the mere treatment by escharotics that is so successful, but the use of them in such a way as to provide for their due operation as antiphlogistics and not as destructives."

Retroversion of the uterus is noticed by Dr. Meigs, from the belief that this malposition of the organ so far interests the state of the cervix, as to bring it within the scope of his inquiries into the acute and chronic affections of the latter.

He has long "been fully convinced," he remarks, "that retroversion of the womb constitutes seventy-five per cent. of all cases of sexual disorders, of a gravity sufficient to require appeal to medical advice. This," he adds, "may, at first, appear to be an exaggerated estimate, but it will probably be found sustained by statistical experience."

We cannot fully subscribe to the correctness of this statement; we are persuaded, from our own observations, that retroversion of the womb is an accident of less frequent occurrence than it is asserted to be by some, and that in many cases the sufferings and other morbid symptoms usually ascribed to it, result from other and very different causes. That retroversion does frequently occur, and is occasionally productive of the most serious results, we are perfectly aware. Dr. Meigs refers to extensive hypertrophy of the womb as one of its usual consequences, as well as the rapid return of the organ to its normal size upon being returned to and retained in its proper position.

A case is given and illustrated, showing the morbid changes which are liable to occur in the texture of the neck of the uterus, followed by a few brief remarks upon these changes, especially those of the inner wall of the cervix.

Certain cases of hemorrhage from the womb are noticed, with cases and illustrations showing their dependence upon raspberry-coloured inflammation of the cervix, or "small *vivaces*, or bunches of red cellular and capillary tissue, which are either found peeping out at the plane level of a somewhat patulous os tincæ, or jutting quite forth out of and beyond it, and attached by a delicate peduncle or footstalk."

A drawing is given exhibiting a case in which many such little excrescences were observed to jut forth of the opened os tincæ, looking not unlike so many very ripe red currants. In this case, it is stated, there was hypertrophy of the womb to such a degree, as to allow the fundus to be felt quite two and a half inches higher than the plane of the superior strait.

The malignant degenerations of the texture of the cervix uteri are merely glanced at. In this connection, a case is given in which an apparently grave form of chronic disease of this part was treated with success. In this case, the reporter believes that if the disease was not actually malignant, it would have certainly become so, had it been allowed to run its own course. An interesting case of hygroma of the cervix uteri, with a firm fibrous tumour developed out of the substance of the fundus itself, while every other part of the organ retained the equable ratios of its several elementary or constituent tissues, is detailed and illustrated by a drawing.

The chief interest connected with this case is, that it shows very forcibly the importance of a cautious prognosis in all cases of uterine disease. In judging from the results of the pelvic examination, and the inquiries made at the suprapubic region, one would have been led to pronounce a flattering prognosis, since no one would scarcely doubt of his ability to cure all the evident disorders of this womb, whereas a *post-mortem* examination proved that

the chief malady was entirely beyond the reach of any known therapeutic means.

Displacements of the neck of the uterus, and their proper management, are next considered, and the report closes with a brief notice of polypus of the womb, with cases and drawings in illustration.

The sudden enormous effusions, generally greatest at the menstrual periods, to which those females who are labouring under polypus of the uterus are liable, is referred to. In many cases, this hemorrhage is present some time before the polypus commences to protrude beyond the os tincæ.

"Many wombs," Dr. Meigs remarks, "are kept in a state of hyperæmia and hemorrhagical fulness by the presence and pressure of the polypus, and such cases are marked by the most violent floodings. Now, when we come to inquire diagnostically into such cases, and find, upon touching, that the os tincæ is unmodified, and the cylindrical neck unchanged, all that we can do is to infer, for we cannot know, that the hemorrhages are caused by a polypus in the cavity; whose existence, however, we can only conjecture or infer, and especially where the polypus is still so small as not greatly to magnify the womb, and make its increase perceptible to the touch in the surpubal region."

"There can scarcely be found, in the whole region of medical duties, a more difficult case of diagnosis than this. Time alone can solve the problem, and then only by protruding the mass into the cervix, or out into the vagina, whereupon all doubt is at an end."

In the report we have just noticed, the teachings of its author are all deductions of clinical experience, and are enforced by facts falling within the immediate observation of the reporter. The report which succeeds, embracing "An Inquiry into the Nature of Typhoidal Fevers, based upon a Consideration of their History and Pathology," is of a very different character. The deductions of its author, Dr. Henry F. Campbell, of Augusta, are not from his own observations, but exclusively from the recorded observations of others. This comparison is not made in disparagement of the report of Dr. Campbell, which is highly creditable to him, and replete with interest and instruction. Notwithstanding the views advanced in it are not the result of clinical investigations conducted by the author, but, as he believes, are rationally deduced from recorded facts, they are not on that account less worthy of our serious consideration, or less likely to lead to important practical results.

The space we have already occupied will preclude our examining in detail the report of Dr. Campbell. The following quotation will give a general idea of the positions assumed by the author:—

"From what has been already said in relation to the distinctive features of the two types of continued fever, typhoid and typhus, their interpretation, according to the pathology herein argued, will have been, doubtless, ere this naturally suggested. We have seen that *typhoid* fever is marked by an accelerated pulse, more or less nervous derangement, an altered condition of the blood, frequently a *mild* cutaneous eruption, diarrhoea, and meteorism. On *post-mortem* examination, we find lesions, viz. congestions and ulcerations of a peculiar character; that is, simulating those produced by experimental sections of the nerves in all those parts supplied by the *visceral* portion of the ganglionic system of nerves. On the other hand, we have seen that *typhus* fever is characterized by a somewhat more accelerated pulse, much more marked nervous derangement, the same altered condition of the blood, well-marked and always *serious alterations* in the capillary circulation of the *skin*, amounting often to actual ecchymosis, while the *post-mortem* examination shows almost entire exemption from lesion in the abdominal viscera. Thus we find that, while both diseases have all their general symptoms so exactly similar that we are forced to acknowledge their identity, and see in them what is essentially but one disease, yet typhoid fever has its principal and most prominent manifestations in the abdominal

viscera, internally; and typhus fever manifests itself in aberrations of the circulation, very analogous to those of typhoid, but occurring in the capillaries of the cutaneous surface.

"Now, the ganglionic pathology is the only theory by which such marked incongruities in the two forms of what, to the observation and scrutiny of every one, must ever appear as one disease, can be perfectly and satisfactorily reconciled. We cannot deny that the two are but types of the same disease; yet how incongruous and strange it is that, in certain cases (*typhoid*), diarrhoea and intestinal lesion should appear the main, the most important features; while in the other cases (*typhus*), undeniably of the *same disease*, even more grave and threatening, there should be not a trace of diarrhoea, and, on *post-mortem* examination, no intestinal lesion whatever; but, instead, serious disease and congestion of the skin, with subcutaneous sanguineous effusions, similar to the submembranous sanguineous effusions of the typhoid type. Indeed, from the very smallest degree of attention, must result the conclusion that, in the two cases, *the disease is one and the same*, but seated in different portions of the organism; and this conclusion will accord exactly with what we have considered the distinctive pathology of the two forms, viz. that in each type the disease is located in a different portion of the ganglionic system. There are certain portions of the system which are affected in both forms of the disease, as the ganglia supplying the heart; but, after this, the two types have entirely distinct and separate sets of ganglia, the morbid action in which gives rise to their respective manifestations.

"In *typhoid fever*, the *internal or visceral* isolated ganglia, such as the semi-lunar, etc., are the seat of the morbid action; and these, supplying mainly, we may say entirely, the abdominal viscera, and having but little connection with the other or external portions of the organism, these viscera become the seat of nearly all the morbid phenomena; while that little implication of the cutaneous surface and general nervous system, which we often observe, is entirely due to the remote and very obscure connection which their isolated ganglia may have with the nerves supplying these parts.

"Now, in the *typhus* type, the same disease or morbid agent (its exact nature we do not pretend to define) affects an entirely different set of nervous centres—a set of ganglia which, by their anatomical position, their internal and universal relations with the anterior and posterior roots of the spinal nerves, are plainly destined to preside over the capillary circulation of parts more superficial—the cutaneous surface. We have reference to the *vertebral sympathetic* ganglia; and in attributing the location of *typhus* fever to these ganglia, we have a ready and satisfactory interpretation of all its distinctive characteristics. The skin becomes congested and ecchymosed (petechial), because its circulation is dependent upon and controlled by innervation derived from these vertebral ganglia; which ganglia being the seat of abnormal action (perhaps paralysis), innervation is deficient; the cutaneous circulation is retarded; in certain places there is obstruction, with actual rupture and effusion, giving rise to petechiae. The general (cerebro-spinal) system is more seriously involved in *typhus* than in *typhoid fever*, because the connection is more direct between the vertebral ganglia—which are the seat of *typhus*—and the cerebro-spinal system. In a word, then, we would locate *typhoid fever* in the *visceral* portion of the ganglionic system, and *typhus* in the *vertebral* portion."

The reports of special committees are followed by two very valuable papers. The first of these is by Dr. Alden March, of Albany, N. Y., on "Coxalgia, or Hip Disease."

This paper of Dr. March is one of deep interest. The facts adduced in it, and which appear to be very fully established and conclusive, entirely overthrow the commonly received opinions in relation to the pathological condition of the hip-joint in cases of coxalgia, and the cause of the deformity consequent upon the disease, as well as in relation to the proper treatment for the prevention and remedying of that deformity.

Dr. March shows that nearly every surgeon *assumes* that spontaneous dis-

location of the hip is not unfrequently the result of absorption, ulceration, or destruction of the ligaments of the joint and of the acetabulum, and of contraction of the muscles surrounding the joint. In opposition to this, the position assumed by him is, that *spontaneous dislocation* of the hip, as purely the result of morbid action, unaided by superadded violence, never takes place. And he points out a plan of treatment by which *progressive absorption* of the acetabulum and head of the bone may be arrested, before the life of the patient is endangered.

Dr. March has examined, with great care, some two hundred morbid specimens, dried and wet, of the condition of the hip-joint in cases of coxalgia, contained in over forty different anatomical and pathological museums of Europe and America; and from a study of these, as well as of patients affected with the disease, his conclusions as to its true pathology and proper management have been deduced.

"I believe," says Dr. March, "all authors describe two principal forms of *morbus coxarius*, or hip disease; one, in which the inflammation commences in the cartilage; and the other, when the cancellous structure of the bone is the primary seat of the affection. In either case, the result may involve all parts of the joint, and prove equally destructive. That form of it in which the cartilage is the first part attacked, is not unfrequently met with in adults; whereas the scrofulous form, the other variety, is mostly confined to children and persons under the age of puberty. The hip-joint may be subject to other forms or varieties of disease: rheumatic inflammation, interstitial absorption, porcelaneous deposit, etc. But it is believed that the changes of structure consequent upon these affections, do not often simulate or counterfeit the symptoms of dislocation. I shall, therefore, confine my remarks mostly to the subject of *ulcerative absorption*, by which such changes have resulted in the articulation as have too often been called *dislocation*."

In the following manner, the reporter explains how all the symptoms of a dislocation can be present during life, when, in reality, on making a dissection after death, the head of the bone is not found lodged on the dorsum of the ilium.

"The cartilage is absorbed, the round ligament is destroyed, and three-fourths of an inch of the upper part of the head of the bone has been carried away by ulcerative absorption. Simultaneously, the cartilage of the acetabulum is disposed of in the same way; the cotyloid ligament, at the upper and back part, is destroyed or removed from the margin of the acetabulum, and the socket is elongated or enlarged three-fourths of an inch in the upward and backward direction. By the action of the fore part of the *gluteus medius*, which lies in juxtaposition with the upper and back part of the capsular ligament, and by the *tensor vagina femoris*, when aided by the action of the *psoas magnus* and *iliacus internus* muscles, the foot is inverted, and the thigh is flexed on the pelvis, and strongly adducted, by which the *trochanter major* is made to project, and to occupy a position nearer the *anterior superior spinous process* of the ilium than in the normal condition; and by the thickening of the capsular ligament, and by effusion of serum and lymph in the cellular tissues, and in the *glutei* muscles, a prominence is observed which has been regarded as the head of the bone *lodged on the dorsum of the ilium*.

"By the destruction of three-fourths of an inch of the head of the bone, and by absorption and elongation of the acetabulum upward and backward to the same amount, if these two parts remain in contact, as it is contended they do, by the action of the *glutei* muscles, then we have an inch and a half of shortening of the limb."

The treatment of coxalgia proposed by Dr. March is extension and counter-extension by means of splints, so as to keep the limb in a state of perfect repose, and to take off all pressure from the diseased surfaces of the acetabulum

and head of the femur. A treatment which he believed was peculiar to himself, as no notice of it is to be found in any of our systems of surgery. Its rationale is thus explained:—

"In the advanced stage of the disease, the cartilages of the acetabulum and of the head of the bone are destroyed; the carious and loose spongy bony tissue is covered with coagulated lymph, and this, adhering to the surfaces of the bones, becomes highly vascular. Now, if these two surfaces, thus covered with organized or organizable matter, could be kept in easy apposition and at rest, without too much pressure on the one hand, and on the other, without exerting too much separating or sundering force, in many instances a bony ankylosis would be the result. By the pressure of the muscles that act on the head of the bone and acetabulum, in addition to ulcerative absorption, we get progressive absorption, and hence the great destruction of the osseous parts of the joint." "In the early stage of the disease, before shortening or distortion of the limb takes place, it will be important to resort to the use of the long splint to maintain the joint in a state of rest, that the inflammation may subside."

Dr. March remarks that the long splint of Dr. Physick was calculated to fulfil a part of the above indications—relief from pressure of the upper part of the head of the bone, and the upper and marginal part of the acetabulum.

"But," he adds, "in fixing it to the whole length of the limb, and to the trunk nearly as high up as the axilla, there must necessarily be a considerable amount of pressure on the outer face of the trochanter major, the tendency of which would be to produce absorption of the head of the bone occupied by the attachment of the ligamentum teres, and of the deep part of the acetabulum, so that the diminished head and neck of the bone might be thrust through into the cavity of the pelvis, which I have actually seen."

Dr. March gives a description and drawing of a form of splint which he believes to be adapted to fulfil the indications had in view in the treatment laid down by him, without any of the disadvantages just referred to as liable to result from the ordinary long splint.

The entire paper of Dr. March is deserving of a close and candid examination on the part of every practitioner. We believe that the facts and reasoning it adduces are calculated materially to modify the views almost universally maintained in regard to the pathology of coxalgia, or hip disease, and to suggest a plan of treatment better adapted than any now in general use to prevent serious deformity and lameness, if not to preserve the movements of the affected limb.

The second paper is by Dr. Gurdon Buck, of New York city. It is on "The Surgical Treatment of Morbid Growths within the Larynx, illustrated by an Original Case and Statistical Observations, tending to elucidate their Nature and Forms." It is a highly valuable contribution, throwing much light upon an affection which, though not of very frequent occurrence, is insidious in its commencement, often obscure throughout its progress and in its diagnosis, and most distressing in its symptoms, so soon as the morbid growth in the larynx has acquired any size.

The analysis which Dr. Buck presents of the cases on record of this disease furnish all the leading facts, so far as they have been observed and noted, in relation to the sex and age most liable to its occurrence; the causes that may be suspected to produce it; its distinctive phenomena, duration, and modes of termination.

The result of the disease, when left to itself, is almost necessarily fatal. In only one of the cases collected by Dr. Buck were the efforts of nature competent to detach and expel the foreign growth, the expulsion being followed by recovery. In another case, several portions of the tumour were expelled

by coughing, with temporary relief to the respiration and voice. In a third case, the tumour was found detached and free in the trachea; but suffocation took place before it could be expelled. "In the progress of the disease," Dr. Buck remarks, "when once suffocative paroxysms have become established, the danger of suffocation is imminent, and the catastrophe may occur at any moment."

Surgical aid appears to be our only resource for the relief or cure of this formidable disease. For observations on the particular mode of applying it, and the probable success that may be expected to follow it, our readers may consult with profit the interesting paper of Dr. Buck.

The next article is a short paper by Dr. Henry F. Campbell, of Georgia, in which that gentleman lays claim to priority in the enunciation of the doctrine that there exists a reflex relationship between the sympathetic and the cerebro-spinal systems of nerves, which has been recently claimed by Dr. Bernard, of Paris, as an observation entirely new and original with him. Dr. Campbell has shown that, at least, priority of publication is with him.

The two essays to which prizes, of one hundred dollars each, were awarded by the Association, at its recent session, complete the contents of the present volume of *Transactions*.

The first of these prize essays is "On the Surgical Treatment of Certain Fibrous Tumours of the Uterus, heretofore considered beyond the Resources of Art." By Dr. Washington L. Atlee, of Philadelphia.

The essay consists, in great part, of the detailed histories of fourteen cases of the extraction of tumours from the cavity of the uterus, or from within the substance of its parietes, by operations of certainly a very bold character. In the majority of these cases, the extraction or destruction of the tumour was effected by introducing the knife within the cavity of the womb, and separating by it the attachments of the morbid growth to the inner surface of the organ, or when it was imbedded in its walls, freely incising, from within, the uterine parietes, and turning out with the finger the tumour from its bed; or, if this could not be effected, trusting its expulsion to the contraction of the uterine fibres of the uterus, under the specific influence of ergot.

The result of eight of the cases reported in the essay is set down as in entire recovery. In one, death took place soon after the operation, from pneumonia; in another, from erysipelas of the abdominal parietes. In this instance an ineffectual attempt had been made to remove the tumour by gastrotomy, and then its removal *per vias naturales* was undertaken; during the progress of which operation the fatal attack of erysipelas combined with peritonitis, occurred. In a third case, the patient perished from anaemia; in a fourth, from disease of the heart; in a fifth, from peritonitis, the tumour proving, in this instance, to be of a malignant nature; while in a sixth case, under treatment at the time the essay was completed, fears were entertained that the uterine disease was also of a malignant form.

How far the fatal result, in any or all of these cases, was directly or indirectly attributable to the operation, it is not our intention here to inquire, though in determining upon its propriety and expediency the inquiry is one of some importance.

We confess that the result of the cases presented by Dr. Atlee, favourable as it unquestionably appears to be at first view, does not, after a careful examination of the history of each case, as given by that gentleman, impress us strongly in favour of the operation described.

There is little doubt that, in cases where we could be quite certain as to the true character, position, and state of the uterine tumour, the operation, as

practised by Dr. Atlee, may be successful, and prove the means of securing the comfort, or even prolonging the life of the patient; that is, provided always the state of her general health, and her freedom from other organic diseases are such, also, as to warrant its performance. But, when we consider how uncertain must be our diagnosis in most cases; how many circumstances there are in connection with tumours attached to the inner surface of the uterus, and more especially with those developed within its substance, all of vital importance in deciding upon the propriety, feasibility, and probable success of any operation for their removal, of which circumstances we have no means of forming any positive judgment; it must be evident that the propriety of all such operations, and their ultimate result, so far as the patient is concerned, must always be questions involved in much doubt and uncertainty.

Dr. Atlee admits the impossibility of enucleating tumours imbedded in the substance of the uterus immediately beneath its peritoneal covering, when they have been the seat of inflammation, or undergone degeneration; "as, in the first case, adhesions will be formed between it and the cyst, and, in the latter case, the cellular structure of the uniting membrane will be destroyed." Now, is not the same thing true in reference to what Dr. Atlee denominates *intra-mural* uterine tumours, or those developed within the substance of the uterus? Have we any certain means of determining when such change in their condition has or has not taken place?

We have no certain guide to lead us to a correct diagnosis, in the case of tumours hidden entirely from our view, as to their simply fibrous and benign, or their malignant character and tendency. A severe and dangerous operation for the removal of a tumour of a decidedly malignant character should not be countenanced. Even if the tumour has merely the tendency to assume a malignant form, as Dr. Atlee presumes may be the case with some of the fibrous tumours of the uterus, we have strong doubts as to the propriety of such an operation for its removal, however early in the disease it may be performed, and even though we could be certain that by it every portion of the diseased structure may be removed. The history of malignant growths presents the melancholy fact that a return of the disease after an operation, sooner or later, almost invariably takes place; and there are too many reasons for believing that the operation itself has a tendency to accelerate the rapidity of the malignant degeneration, in the tissues surrounding that in which it had already made its appearance.

Dr. Atlee, himself, who we have a right to believe has attentively and cautiously studied the subject of fibrous tumours of the uterus, and who from frequently operating in such cases must have acquired very considerable tact in their diagnosis, admits that he has himself been misled as to their character and the certain success of an operation instituted for their removal.

In the fourth case detailed in the essay before us, he states that—

" Apart from its history, I should have considered the tumour to be either in the cavity of the uterus, or in its walls; but viewing it in that connection, and respecting the opinions of those gentlemen who had examined the case before, I was willing to believe it to be extra-uterine, consisting of either the right ovary, which had undergone fibrous degeneration, or a pedunculated fibrous tumour of the uterus itself, and that its extirpation by gastrotomy was possible."

The operation was accordingly performed; but upon exposing the uterus, it was ascertained that the removal of the tumour could not, with propriety, be attempted. The wound was accordingly closed, and the patient rapidly recovered. Subsequently, it was concluded, "that the tumour existed within

the cavity of the uterus, attached extensively to its interior surface, and that it was possible to remove it through the natural passage." This attempt was, however, equally unsuccessful. The patient died of erysipelas, with peritonitis.

The *post-mortem* examination "disclosed a fibrous tumour in the interior of the uterus, sealed firmly to it at every point, except a space about three-quarters of an inch in diameter, communicating with the mouth of the womb." "The tumour itself had evidently degenerated. Large masses of it had softened down into a brain-like substance, while other parts retained the fibrous character."

Now here is a case of uterine disease entirely beyond the reach of art—in which the diagnosis was marked by so much uncertainty that the abdomen was first opened, and when it was found that the tumour could not be removed by operating from the external surface of the uterus, the edges of the os tincae were "slightly nicked in several directions," and large quantities of ergot given, in hopes that the uterus would throw off a mass which it was discovered, after the death of the patient, could not have been got rid of by any means short of ablation of the entire organ.

In the fourteenth case, again, the diagnosis is stated to have been quite obscure. So far as it could be made out, the tumour appeared to be fibrous—most probably, extra-uterine. Gastrotomy was performed, when it was found that the tumour could not be removed. After the patient's recovery from this operation, an effort was made to destroy the tumour by cutting through the posterior walls of the vagina and into the substance of the morbid growth. A process of decomposition was in this manner induced, and, after several weeks, the tumour softened and diminished very much in size, and the general health of the patient improved. Some weeks subsequently, "the discharge having ceased, and all operative measures having been carried as far as it was deemed safe, she went to the country for the summer. On her return in the autumn, the abdomen was found to be "still large," but, in all other respects, we are informed, the patient enjoyed good health.

We adduce these two cases not for the purpose of discussing the propriety of the surgical measures instituted in either—but to show how difficult it occasionally is, in cases of uterine tumours, to arrive at so clear a diagnosis as shall indicate the kind of operation adapted to their removal, the propriety of resorting to it, and the probability of its success.

In the hands of the skilful and experienced surgeon—prepared for every emergency, and prompt to overcome every unforeseen difficulty that may present itself—the operation, described by Dr. Atlee in the present essay, may, perhaps, prove successful in a certain limited class of cases of uterine tumours; but, in the hands of the rash and inexperienced, of the mere operator, we very much fear that they will more often result in disaster than in benefit to the unfortunate patient.

The subject of the second of the prize essays is "The Cell; its Physiology, Pathology, and Philosophy, as deduced from Original Investigations" by its author, Dr. Waldo J. Burnett, of Boston, Mass.

We can do little else than give the title of this essay. The subjects embraced in it present so extensive a field of inquiry, and involve so many points of a debatable character, in relation to which a difference of opinion must continue to exist until they shall become definitely settled by repeated as well as more extended and diversified series of observations, that, were we to enter into an examination of the views advanced by Dr. Burnett, we should

be obliged to extend the present review, already too long, beyond all reasonable limits.

The essay will be found a very valuable contribution towards the elucidation of the physiology of cell-formation and its relation to organization, mainly deduced from original investigations.

As an original production, its value will depend mainly upon the accuracy of the observations instituted by its author. On this, we are not prepared to offer any opinion. No one is competent to decide upon the fidelity with which Dr. Burnett has delineated the several forms and mutations of organic cells, who has not, with microscope in hand, carefully studied the subject for himself, or who has not, at least, repeated the same series of observations as those from which the deductions of that gentleman are derived.

As a monograph on the general subject of cell development and function, the essay is, to a certain extent, instructive. Deficient, it is true, in regard to some of the more recent facts and doctrines, but, upon the whole, ably and faithfully drawn up. Written, as the author admits, in a prefatory note, during the year 1851, "the many advances the science of structure has since made, has thrown so much light on some obscure points, that the parts relating to them ought almost to be now rewritten, to be up with the times." This deficiency he has, however, sought, at least in part, to make good, by inserting as much new matter as well could be, while the sheets were passing through the press.

We have many reasons to regret that the author was under the necessity of making the statement just alluded to, candid and honourable as it is on his part.

It will deter many, we fear, from the attentive study of the essay, under the impression that they will not derive from it complete information in relation to the subject of which it treats; while it may, perhaps, lead to the supposition that the Association has been misled in conferring one of its annual prizes on a dissertation which is behind the knowledge of the day.

D. F. C.

ART. IX.—*Practical Observations on Aural Surgery, and the Nature and Treatment of Diseases of the Ear.* With Illustrations. By WILLIAM R. WILDE, Surgeon to St. Mark's Ophthalmic Hospital, Dublin, &c. &c. Philadelphia: Blanchard & Lea, 1853. 8vo. pp. 475.

WE have rarely had the pleasure of inviting the attention of our readers to a publication which will be more welcome to the profession than this. It treats of a subject extremely little known to the mass of practitioners, and which has been tacitly relinquished by them to quackery and ignorance as a choice preserve in which these may hunt their game. The reason of this is doubtless to be found in the complex anatomical structure of the ear, and the concealed situation of its most important parts; whereby a thorough physical examination of the organ during life, and a satisfactory *post-mortem* investigation are rendered extremely difficult to all, saving to the few whose nice observation and patient and laborious research are neither to be baffled by obscurities nor wearied by obstacles.

Mr. Wilde possesses in an eminent degree the qualities necessary to the

successful prosecution of aural surgery. We read in a recent number of an able contemporary, the *London Medical Times and Gazette*, that he "was the pupil of the late celebrated Abraham Colles, Professor of Surgery in the College of Surgeons in Ireland, who made use of him to carry out numerous pathological investigations in which that great man was constantly engaged. He was then known no less for the patient industry and success with which he conducted researches generally dry and uninteresting to young minds, than for the extraordinary energy and activity which he brought to bear upon every topic connected with the advancement of his studies, or with those branches of the science of medicine which fell in his way." Thus prepared by previous training, he devoted himself from a very early period of his professional life to the study of diseases of the Eye and Ear. He instituted St. Mark's Hospital, in Dublin, for the treatment of these affections, and now, about ten years since its commencement, this establishment is, we are told by Dr. Hewson, one of his pupils, and the American editor of his book, "one of the largest and best conducted of the kind in Great Britain."

Mr. Wilde prefaces the special consideration of Aural diseases with a chapter on the history of these affections, in which the chief writings and recommendations upon the subject are enumerated according to their dates, and briefly criticized. This portion of the volume is interesting and instructive on many accounts; but we will not dwell upon it, trusting that our readers will possess themselves of the book and examine this chapter personally. The first special treatise on Aural affections which Mr. Wilde has been able to discover is that of Heurnius Mercurialis, *De Oculorum et Aurium Affectibus Praelectiones*, published at Frankfort, in 1584. And the most notable contributors to this branch of pathology since that date are, we gather, Du Verney, in 1683; M. Guyot, a postmaster of Versailles, who, in 1724, proposed to the French Academy to inject the Eustachian tube by means of a catheter introduced through the mouth; Archibald Cleland, an English army surgeon, who, in 1741, proposed a speculum for examining the ear, to which Mr. Wilde thinks may be traced the subsequent *inspector auris* of Deleau, Itard, Buehanan, and Kramer, and to whom is due the merit of suggesting that the Eustachian catheter should be introduced through the *nostril*; Mr. Watham, who, in 1755, published an essay in the *Philosophical Transactions*, proving that the Eustachian tube and the middle ear can be entered and washed out by means of a catheter introduced by the nose into the tube; Degraviers and Cooper, to whom we are indebted for the operation for perforating the *membrana tympani*; Saunders, the founder of the London Infirmary for Diseases of the Eye, whose work on the Anatomy of the Human Ear, illustrated by a series of engravings of the natural size, with a treatise on the Diseases of that Organ, the Causes of Deafness, and their proper treatment, published in 1806, Mr. Wilde regards as the first English production, on this specialty, possessing any merit; Delau, Itard, Valleroux, in France; Kramer, Lincke, Sehmalz, and Frank in Germany; and latterly, in England, Pileher, Dr. J. Williams, Wharton Jones, Yearsley, Harvey, and Toynebee, to the last of whom we are particularly indebted for the greatest number of *post-mortem* examinations of the ear.

The three great epochs in the history of Aural surgery, are marked by the introduction of the *speculum auris* by Fabricius Von Hilden, about the middle of the seventeenth century; the suggestion and employment of the Eustachian catheter, by Guyot, Cleland, and Watham, within the succeeding hundred years; and finally, the perforation of the *membrana tympani* by

Degravers and Sir Astley Cooper in the last quarter of the eighteenth, and in the commencement of the present century.

As to the plan and scope of the present work, Mr. Wilde says:—

"At the commencement of each chapter I have given a brief anatomical description of the parts concerned in the affections under consideration, and a concise account of their most remarkable malformations and congenital diseases; afterwards, the etiology and treatment of those diseases with which I am myself most familiar are described. I have followed that division into the diseases of the external, middle, and internal ear, because it seems to facilitate description, as well as to make the most lasting impression on the mind of the student. The work concludes with a section on deaf-dumbness, which contains the result of the inquiry set on foot under the Irish Census-commission for 1851, and which I have compressed from the official report upon that subject."

The means of diagnosis, and the application of remedies are the subjects of the second chapter. In it we find a more complete and detailed account of the plan to be pursued in examining patients labouring under Aural affections than we have seen in any other publication. The importance of such instruction cannot be overestimated, as it lays at the foundation of, and should determine, all subsequent proceedings. We propose, therefore, to give, as concisely as possible, the course which Mr. Wilde recommends.

The physical examination should be prefaced by so placing the patient that a strong, direct sunlight, if possible, should fall upon the ear. The colour, feel, temperature, thickness, &c. of the auricle should be ascertained; the concha should be particularly scrutinized with reference to these points. Then, the upper rim of the helix should be lifted upwards, backwards, and outwards by the thumb and finger of one hand, and the tragus should be drawn forwards upon the zygoma, so as to expose to view the outer portion of the auditory canal. To facilitate the exposition of the external aperture, a little instrument, resembling in shape the ordinary univalve speculum recti, but more delicate, of course, may be employed. The amount of tenderness of the parts should be investigated, both by simple pressure and by compression made with the finger while the lower jaw is moved as in ordinary mastication.

"Where we have reason to believe," says Mr. Wilde, "that inflammatory action exists, the *mastoid process*, in an especial manner, claims our attention. Its colour, size, shape, and temperature, may be learned by even a cursory examination; but besides this, it should be most carefully pressed upon with a couple of fingers, with a much greater degree of firmness than is usual in making examinations of the like nature elsewhere; and this examination should not only be applied to the mastoid region, but to the whole posterior and lateral portion of the head, if we have reason to suspect any inflammation, or its effects. The insertion of the sterno-mastoid, as well as the upper third of that muscle, should also be carefully examined in the same way, as there is a small gland, in shape and size like a horsebean, situated immediately behind the auricle, over the middle of the mastoid process, which frequently becomes enlarged during the progress of aural inflammations, and is also the seat of violent neuralgic pain in some instances. If the integuments and soft parts are swollen or oedematous, as is frequently the case in certain inflammatory affections of the ear, as also where they have become thickened from long-continued disease, it will require a considerable degree of force to make a perfectly satisfactory examination. The amount of pitting made by the finger during this examination, and its degree of permanency, are also circumstances of value in the formation of a diagnosis. Percussion of the mastoid process, immediately behind the attachment of the auricle, occasionally affords some information, as will be shown in some of the cases hereafter detailed."

In order to ascertain the condition of the auditory canal and the external face of the membrana tympani, it is necessary to employ some kind of *speculum* through which a stream of light, either that of the sun or of a flame, shall be conveyed directly down upon the surface to be examined. Mr. Wilde discusses the merits and defects of the various instruments devised and used for this purpose, and which we need not enumerate, and expresses his conviction of the superiority of the one which he himself introduced in 1844—a modification of that invented by Dr. Newburg, in 1827. This speculum is a conical silver tube, both surfaces of which are highly polished; it is an inch and a half long, five-eighths of an inch wide at the greater aperture, which is surrounded by a stout ring or burr, and varying from two to four lines in the clear at the smaller extremity, of which the outer surface should be perfectly smooth and rounded, so as not to lacerate or scrape the lining membrane of the meatus. He advises that three of these little instruments of different sizes should be procured and carried in a small case, one fitting into another. We may remark that drawings of this speculum, as well as of all the other instruments invented by Mr. Wilde, are introduced into this book. The patient being seated opposite a strong sunlight, the tube is inserted gently into the meatus, and the head is so inclined that the light shall strike successively upon every part of the surfaces to be examined, so that the surgeon's eye may carefully scrutinize the whole. "By this means, every part of the external auditory tube, and the membrana tympani, and even the position of the malleus within it, may be as distinctly seen and as carefully examined as any portion of the external surface of the eye." "Another great advantage which this funnel-like speculum possesses over all others is, that it remains fixed in the ear, causing scarcely any inconvenience, and leaving one or both hands free for the application of instruments if necessary. It is also much more easily used with young children than any other." Of course it is not possible to *dilate* the auditory canal by a hinge-jointed or any other speculum; the most that can be accomplished is to straighten the external cartilaginous portion of the tube, and thus permit the light to penetrate to its bottom and sides. It is hardly requisite to state that if the canal be plugged up with hardened cerumen, this must be removed, and the lining membrane be uncovered before a satisfactory examination of the latter can be made. For the purpose of clearing the passage, tepid water may be injected from a syringe; or, if the obstruction be but partial, consisting of a small quantity of wax, or of detached cuticle, hairs, or other small bodies, a pair of fine forceps may be employed, being passed through the speculum or not, as the surgeon may choose. The forceps which Mr. Wilde recommends for this object are long and slender, having the blades bent at an obtuse angle, so that when occupying the cavity of the speculum they do not prevent the operator from looking into the tube. An objection to using the syringe is, that, in cases where there is any inflammatory condition of the lining membrane of the meatus, or even a tendency to this state, the stream of water usually increases the already existing injection, or reddens the membrane which may previously have been little if at all suffused. Clear and minute directions are given as to the mode of using the syringe and the other instruments employed.

The form, curvature, colour, polish, vascularity, and the secretion of the entire lining membrane of the meatus, together with the condition of the membrana tympani, are to be carefully noted.

"The *tympanal membrane*, in an especial manner, claims our attention; not only its superficial colour, but its degree of opacity or transparency, its tenuity or thickening, its vascularity, and the arrangement and position of its vessels

in every part; its tension, flexibility, polish, curvature, and its position as regards the interior of the cavity of which it forms the outward boundary; and, also, the direction and projection of the handle of the malleus, and the characters of the membrane, both above and below this bone, should be carefully observed. While the membrane is thus within the field of the speculum, the patient should be desired to try and press air into the drum, by holding the nose, shutting the mouth, and making a forced expiration. This manœuvre should be resorted to several times, if the first be ineffectual, as some degree of tact on the part of the patient is necessary to test the experiment. The sound thus produced is a sort of *thug*, and very much resembles that of a dried bladder suddenly inflated with air. In order to become familiar with it, one should practise it himself. While the air is thus pressed into the drum, we should note accurately whether the membrane vibrates, or its tensity is altered; and, if so, whether it regains its original position suddenly or gradually. The patient's own sensations should likewise be taken into account in this matter. It is also necessary carefully to observe the degree of vascularity produced by this inflation, as well as the course and position of the vessels which cause such vascularity, for even in several healthy ears, if this experiment is made two or three times, we seldom fail to recognize one or two vessels becoming filled with red blood along the course of the malleus; and if a small aperture exist in the membrane which may have escaped the eye previously, we may then readily detect it both by sight and hearing. By this means, we often discover a perforation which, from its minuteness, or owing to the part being thickened or coated with discharge, had not been noted during the ocular inspection. If such exist, we shall then see its open everted lips sometimes pressing out mucous discharge, and also hear a peculiar whistling sound, which the air makes in passing through this narrow aperture. There are, however, some cases of perforate membrana tympani, where, from obstruction in the upper part of the Eustachian tube, or granulations in the middle ear, this cannot be effected. If the patient be able to inflate the tympanum by this method, we may then remove the speculum, and, applying our own ear, either directly or through the intervention of the stethoscope placed over the external auditory passage, the same method of inflation should again be had recourse to, and the peculiarity of sound which is thus produced in the middle ear, whether the ordinary normal rush of air, or a prolonged squealing or gurgling sound, such as might be occasioned by any contraction in, or thickening of, the walls of the Eustachian tube, or by dryness, or by accumulation of mucus, either in it or in the cavity of the tympanum, is heard. The stethoscope should also be applied over the mastoid process, and the same series of observations made upon the sounds, if any, produced there; but these latter can seldom be heard distinctly.

"If the patient be unable to inflate the tympanum, and we have reason to suspect some obstruction of the *Eustachian tube*, or an accumulation of mucus, blood, pus, or other matter, in the middle ear, we may then, should the case require it, proceed to inject air by the mechanical means of a pump, an elastic tube or catheter, into the cavity of the tympanum, while we carefully note the result by means of a stethoscope, or by the ear placed externally. It must, however, be particularly borne in mind that, if the patient is labouring at the time under acute inflammation of the drum or its membranes, or the lining of the Eustachian tube, the catheter is not only inapplicable, but highly injurious. I have latterly very seldom found it necessary to resort to this operation, as the cases to which it is applicable are of much greater rarity than is usually supposed, or as the works of aurists would lead us to believe."

Mr. Wilde furnishes very precise and detailed directions for the performance of Eustachian catheterisin, and for injecting air or other substances into the tube, and describes the implements with which these operations may be best accomplished.

He insists abundantly upon the necessity of using extreme care and gentleness, and criticizes earnestly the too frequent and unnecessary resort to such

proceedings. The aphorism laid down by Sir Astley Cooper, is, like most of the rules of that distinguished surgeon, a very safe one : " Whenever the patient is himself able to inflate the tympanum, never use any artificial means to do so; it is unnecessary, and may be injurious." To this, Mr. Wilde adds another equally judicious : " Where there is reason to believe that the cavity of the drum is inflamed, carefully abstain from all poking with catheters, or any attempt to introduce foreign substances into that delicately organized portion of the animal machine." He particularly reprimands the dangerous practice, urged by some aurists, of exploring the upper part of the Eustachian tube, and even of attempting to penetrate to the cavity of the tympanum, by means of probes of various kinds. He says :—

" The only solid instrument with which I now ever venture to explore the Eustachian passage, and that for only a short distance, is an ivory bougie, rendered flexible by having the earthy matter removed by immersion in an acid, and the point of which, for an inch at least, had been previously softened in water, so as to resemble a piece of gelatine. A large-sized catheter should be first introduced, and the bougie passed up through it; but stricture of the Eustachian tube is so exceedingly rare, and so difficult to recognize during life, that the surgeon is very seldom called on to practise such an operation."

Various instruments have been contrived by Schmalz and others, for the purpose of measuring the hearing distance and the degree of deafness. Mr. Wilde prefers the ordinary watch which ticks loudly. The watch should be first held close to the external meatus, and then gradually removed, and the greatest distance at which the ear can count its tickings should be carefully noted and recorded, for subsequent comparison. The watch should be held in various positions with reference to the ear; in front, behind, in contact with the auricle, touching the mastoid process, the forehead, the teeth, &c.; it should also be tested with the mouth open and shut, both before and after inflation of the tympanum.

Some persons, more or less affected with deafness, hear comparatively faint sounds best when they are at the same time exposed to loud noises, as the rumbling of a cart, the thundering of a railroad train; some hear unequally at different periods of the day, after and before meals, in dry and in damp weather. These and similar peculiarities should be accurately inquired into.

Subjective sounds, commonly called tinnitus aurium, furnish also points of consideration in forming a diagnosis. Their importance is very variable, however.

The condition of the *throat*, the arches of the palate, uvula, tonsils, and pharynx, should also be investigated, particularly with reference to the state of the mucous membrane. The forefinger should be introduced far into the mouth, and its point pressed firmly upwards and outwards beyond the palatine arch, opposite the mouth of the Eustachian tube, and note taken of the degree of pain or inconvenience it produces there and in the middle ear. We should also carefully examine the state of the lining membrane of the nose.

The history of the case in all its aspects, and the subjective symptoms, should be investigated as in other diseases.

The *treatment* which Mr. Wilde recommends is much more actively anti-phlogistic than is commonly supposed requisite by practitioners whose attention has not been specially directed to aural diseases. He says :—

" As most of the diseases of the organ of hearing are originally of an inflammatory character, depletion is strictly enjoined; I have, however, seldom found it necessary to resort to general bleeding; but local depletion is imperatively required, either by cupping or by iceches." In employing the latter,

they should not be applied, as is usually done, behind the mastoid process; but, to be of real service, "they must be attached with a small bevel-mouthed leech-glass immediately around and within the edge of the external meatus, in the fossa behind the tragus, and, if necessary, in front of that prominence, in the hollow formed by depressing the jaw."

He likewise insists strongly upon the importance of administering mercury, so as to affect the system, in all active inflammations of the ear which do not promptly yield to local measures. His remarks upon the modes of exhibiting this medicine, and the best forms in which it can be given, are very judicious.

"Under no circumstances," says he, "should we pour any sedative or stimulating liquors into the ear. From the frequency of this most unjustifiable practice in this country" (and can we not extend this same remark to our own?), "I feel I cannot too strongly deprecate it. If there is one substance more irritating than another in the Pharmacopœia, it is poured, *secundum artem*, into the ear, to relieve pain or cure deafness, to lessen or increase the secretion of wax! This practice is often the cause of myringitis."

It will be seen that Mr. Wilde applies the habit of close observation and prompt and decided action, which are felt to be necessary in the practice of ophthalmic medicine and surgery, to the examination and treatment of diseases of the ear. And in fact, throughout his book, he makes the known analogies of the structures and functions of the eye and ear practically useful and instructive in the management of the affections of the latter organ. We cannot too highly commend this chapter to the consideration of our readers.

The third chapter is allotted to an exposition of the *statistics* and *nosology* of ear diseases.

Mr. Wilde passes in review the reports of Kramer, Tscharner and Toynbee, and then furnishes us with the statistics of St. Mark's Hospital, embraced within a period of rather more than eight years, and comprising 2,385 cases. In this statement are recorded the nature of the particular disease of the organ, the age and sex of each patient.

This section is admirably prepared, and exhibits throughout a candour and a diagnostic acumen worthy of all imitation. He says:—

"As the acquisition of knowledge is progressive, so my means of forming an accurate diagnosis improved with my experience, and therefore the value to be attached to the early years included in this table is not so great as that for a later period. I have consequently divided the results into two portions; the first including three, the second four and a-half years. In the first portion of the table, out of 706 recorded cases, 85 were set down to *nervous deafness*, which I am inclined to think was an exaggeration, as, by a more carefully conducted examination, and with increased experience, I found but 18 cases out of 1679 in the second period; having observed since the former period that many of the cases attributed, for want of a better name, to 'nervous deafness,' showed such manifest appearances of diseased action in the *membrana tympani*, that little doubt now remains upon my mind that the defect of hearing was to be attributed, not to paralysis or want of power in the auditory nerves, but to lesions produced by inflammation. Again, in the first period there is no entry for opacity and thickening of the *membrana tympani*, the unmistakable result of inflammation, but as many as 219 in the second; and under the head of inflammation of a chronic character, we find but 82 cases noted in the first, and 314 in the second."

Of the 2,385 cases reported, 579 were simply of impaired hearing produced by impaction of the external auditory passage with cerumen; 114 of nervous deafness, so called; 25 of tinnitus aurium, unaccompanied by deafness or any apparent disease; 14 of otaliga; 7 of deaf-dumbness, congenital or acquired; 2 of accidental hemorrhage from the tympanal cavity; 7 of congenital mal-

formation; 20 of collapsed membrana tympani; and two of tumours of the auricle; making in all but 770 diseases of the ear not directly traceable to inflammation or its effects.

It will be seen, therefore, that Mr. Wilde believes in the comparative infrequency of pure and simple *nervous deafness*. And to confirm his position, he inquires into the proportions which uncomplicated *amaurosis* bears to the mass of ophthalmic diseases. "Out of 11,233 cases registered at St. Mark's Hospital, but 857 were diseases of the retina and optic nerve, and only 341 of these were instances of uncomplicated *amaurosis*, or about 1 in every 33 of the entire." Now, bearing in mind the fact that the ear is less accessible to accurate examination than the eye, it is exceedingly likely that existing evidences of inflammation in the former may have escaped observation.

In this matter, Mr. Wilde's statistics are very much opposed to those of Kramer. Of his aggregate 2,000 cases, published in 1845, the *Berlin Aurist* designates 1,028 as of simple nervous deafness, or more than one-half; and of the second 2,000, published in 1849, 848 are of the same kind. Mr. Wilde very forcibly, and indeed unanswerably, combats the accuracy of this estimate not only upon the ground of his own observations, the analogy drawn from the comparative rarity of simple *amaurosis*, and the positive results of Mr. Toynbee's numerous dissections, but also from Mr. Kramer's own record of the appearance presented by the membrana tympani in the cases in question. Dr. Kramer states that, in nervous deafness, he has "almost always found the membrana tympani white like paper, and opaque, probably in consequence of the action of its absorbent vessels having been impaired." In reply to this assertion, Mr. Wilde very cogently remarks:—

"Now, had Dr. Kramer been conversant with the normal healthy condition of the membrana tympani, he would have known that it was shining, diaphanous, or semitransparent, and of a yellow-gray tint (except towards its superior attachment, and along the line of insertion of the handle of the hammer-bone), somewhat the colour of gold-beaters' skin, or, what bears a still closer similitude, on account of its greater thickness and fleshy tint, the thin sheet gutta percha which has been lately introduced for surgical purposes."

The opinion of Mr. Wilde is confirmed by Mr. Toynbee's dissections, an abstract of which, taken from the *Medico-Chirurgical Transactions*, vols. 24, 26, and 32, is presented. Mr. Toynbee has examined 915 ears of 750 persons; of these, 303 were in a healthy state. Of the remaining 612, 184 had belonged to persons who are known to have been deaf; 70 showed such manifest evidences of disease as left no doubt upon the mind of Mr. Toynbee that defective hearing was experienced in these also; and 358 were believed by him to have been in a state of commencing deafness. The following is part of the conclusion of Mr. T., drawn from his examinations: "The fact of a thickened or otherwise deranged state of the mucous membrane lining the tympanic cavity being one of the most common pathological conditions of the organ of hearing, is the broadest general result of the dissections; and as cases as carefully examined, noted, and studied as they have arisen in practice, and lead to the same conclusion, I have little hesitation in stating diseases of that membrane to be the most usual cause of deafness."

The following are a few of the figures of Mr. Toynbee, which we copy to show how this inference is supported. The external meatus exhibited disease in 80 instances, or one in every $7\frac{1}{2}$ cases; consisting of collections of cerumen and epithelium, pus and epithelium, contraction of canal with alterations in its lining membrane and osseous parietes. The membrana tympani was diseased in 209 cases, or nearly 1 in every 3, being white, thickened, or vascular; concave

externally or flat; concave and adhering to promontory; concave with deposits of calcareous matter; perforated or altogether destroyed, &c. The cavitas tympani contained morbid collections in 107 cases, or about 1 in every 6; its mucous membrane was diseased in 310 cases; bands of adhesion were found in it in 179 cases; the number of instances in which the ossicles were diseased or displaced amounted to 61. The internal ear exhibited the following departures from the healthy condition: The membranous labyrinth was thickened in 4 instances; atrophied in 6; the labyrinthine fluids were deficient in 8; the vestibule and cochlea contained bloody serum in 1 case, pus in 1; a band traversed the vestibule in 1.

In addition to the tabular exposition already alluded to, Mr. Wilde furnishes another, based upon 200 cases, of which all the important features are minutely detailed—exhibiting in each case the sex, age, and ear affected; the duration of the disease; the hearing distance; the state of the auricle, of the external meatus and canal, of the membrana tympani, of the middle ear and Eustachian tube; the amount and kind of pain; the degree and nature of the noises complained of; the state of the throat, and the cause to which the aural disease was ascribed. This is certainly the most carefully compiled, and the most minute table of diseases of the ear which has ever been published. We present the following brief abstract of some of its most interesting facts:—

In 27 instances, both ears were similarly and nearly equally affected; in 100, both ears were diseased, but under varying circumstances in the two ears; in 35, the right ear, and in 38 the left, was alone affected.

In 27 persons, the disease was within one month's duration; in 40, from one to six months; in 17, from six to twelve; 45 were affected from one to five years; 29, from five to ten; and 34 for a longer period.

The hearing distance varied very much: 70 of the patients could not hear the watch under any circumstances; 4 heard on its being pressed against the auricle; 61, on its merely touching that part; 125, within six inches; 22, from that to three feet, and upwards; and in 18, the hearing distance was normal, or not noted.

The meatus and external auditory canal were normal in 68 persons; dry and devoid of cerumen, with the membrane unnaturally white and slightly wrinkled, in 78; coated with discharge, the lining membrane thickened, and frequently pink or vascular, or the passage filled with crusts of inspissated mucus, in 83, and of these 18 had polypi growing from some portion of the canal; in 26 cases, the canal was inflamed; in 9, its walls were so much thickened or approximated as to give the external auditory aperture the appearance of a mere slit; bony growths presented in 4 instances; a few cases occurred of condylomata and other protuberances filling up the meatus, and 4 of congenital peculiarities as regards the length, width, and tortuosity of this canal.

The membrana tympani was normal in only 10 instances, "so that such may be fairly stated as the proportion of cases of *nervous deafness*. In 176 it was thickened and opaque, in whole or in part, from disease of its external layer, owing to inflammations of various kinds—with and without otorrhœa, pressure, or ulceration—from deposits of lymph between its laminæ, or from thickening or vascularity of its mucous lining. These opacities presented the same shades of diversity as do those of the cornea, and they were equally variable in position and in extent. In 121 cases, the membrane was more or less vascular; sometimes presenting a uniform pinkish hue, varying in depth "from that of a monthly rose-leaf to that of a bright blood-red or scarlet, as when affected with recent inflammation;" sometimes the redness was in points

or in striae; in some, the whole surface was not only of a deep-red colour, but also granular, like that of a ripe raspberry or a granular eyelid. Although, says Mr. Wilde, "this corneous condition was often seen, and although so many cases of otorrhœa and polypus occurred, I have never observed a polypus growing from the external surface of the membrana tympani, either in these 200 cases, or in the many hundred ears that I have examined."

In 53 cases, the membrana tympani was more or less collapsed, depending, according to the dissections of Mr. Swan and Mr. Toynbee, upon adhesions passing through the cavitas tympani, either between the mucous surface of the membrane itself or the ossicula connecting it with the inner wall of the cavity. The membrana tympani was perforated in 48 cases, the size and position of the aperture being very variable. In 22 instances, the membrane was invisible, from obstructions existing in the canal.

The cavity was exposed in 28 ears; in 89 its state is not recorded; in 129 it was inflatable, in 73 not inflatable, the mode of testing this condition having been by the patient's own efforts, or by the use of the Eustachian catheter and air press.

"The state of the throat was normal in 181 cases out of the 200, a fact which goes far to disprove all that has been written upon what has been termed '*throat deafness*'; but then it is only fair to state that enlarged tonsils are rare among the lower orders."

The following conclusion is important, both in a preventive and in a curative point of view:—

"From the records of the foregoing 200 cases, taken indiscriminately as they presented themselves at a public institution, as well as from Mr. Toynbee's dissections already detailed, it is incontrovertibly manifest that inflammatory affections of some form or other have been the chief causes of aural diseases. This conclusion must, I think, be conceded; and it is of vast importance that the profession should be convinced on that point, as, on the one hand, it shows not only the inapplicability of the various nostrums still in use for 'deafness,' while, on the other, it holds out a fair hope of alleviating diseases of the ear, if taken in time, by the ordinary means employed for arresting inflammation of the structures engaged."

Mr. Wilde then proceeds to consider the proper *classification* of aural diseases; and, after alluding to the systems proposed and adopted by other investigators of this subject, he propounds his own plan. He arranges these affections into diseases of the auricle and the auricular regions; those of the external meatus, of the membrana tympani, of the cavitas tympani, of the Eustachian tube, and of the labyrinth; and finally treats of deaf-dumbness, congenital and acquired. Each of these classes, with its numerous subdivisions, is treated of in separate chapters.

Before touching upon the pathology and treatment of the diseases of the auricle, mastoid region, and external meatus, described in the fourth chapter, Mr. Wilde details with considerable minuteness the anatomy of these parts—a course which, by the way, he pursues with reference to the other portions of the ear.

Passing by, as we are compelled to do, for want of space, many very interesting topics, we pause for a moment to commend the author's observations with reference to foreign bodies lodged in the external auditory canal. Accidents much more serious than is commonly supposed, such as epilepsy, and even death, have followed this ingress, accidental or otherwise, of extraneous substances; and probably much greater mischief is frequently produced by the unskilful and rude efforts made to dislodge them. Several insects, the

larvæ of flies, peas, the seeds of grain, beads, small pebbles, &c. &c., are often met with in the ear. Mr. Wilde narrates the case of a child who, while playing, allowed a small white stone to slip into the external meatus. A practitioner had employed various instruments to remove it, but, not succeeding in his attempts, he brought the child to Mr. W. The ear was bleeding freely; upon examining, he found the meatus extensively lacerated, and could touch a white rough surface on its anterior wall; this, however, was evidently not the pebble, but the denuded bone; he advised a suspension of hostilities until the hemorrhage should cease. A leech was applied to the margin of the meatus, and afterwards a poultice was laid upon the ear. During the night suppuration commenced, and on syringing the ear with tepid water in the morning, out came the pebble. But, unhappily, the membrana tympani had been ruptured anteriorly by the previous violence, and the bone extensively denuded.

The injection of tepid water will frequently suffice to wash out the offending body; or, at any rate, it will generally alter its position, and permit its extraction by means of a delicate forceps or a curette. But in using instruments, the greatest care should always be employed.

Diseases of the membrana tympani are the subject of the fifth chapter.

We quote from Mr. Wilde's careful description of the anatomy of the membrane the following paragraph, exhibiting the appearance of this important part of the auditory organ in its healthy state:—

"Viewed through the speculum, with a stream of clear sunlight upon it, the membrana tympani is of a grayish hue and semitransparent, and presents externally an irregularly curved surface, as also different degrees of density, polish, and tension. It is divided by a white streak, thick above and narrow below, except at its extremity, which is slightly enlarged, and indented into a navel-like depression. This white opaque line is the manubrium of the malleus, proceeding from the upper attachment of the membrane downwards, somewhat backwards, and a little inwards, to a point slightly below the centre of the membrane, and thus divides it into an anterior, a posterior, and an inferior portion. But the exact situation of this bone, and consequently the relative proportion of the parts which it divides, present great diversity. The anterior part of the membrane is thin, almost transparent, or as clear as fine gold-beaters' skin, highly polished and generally *convex*, a speck of bright light being reflected from its most prominent part. This may be called the anterior vibrating portion. In many cases, the short process of the malleus may be seen as a small round dot above the manubrium, where the membrane curves off into the roof of the meatus. The bottom of the meatus, it should be remembered, is funnel-shaped, the broad end of the funnel being towards the tympanum," &c. &c.

In making this examination, the speculum should not be inserted much beyond the middle of the meatus; then, by altering the position of the head and the angle of the instrument, the entire extent of the membrane may be seen. Its vascularity and the shape of its presenting surface are more or less affected by examining it whilst the cavity of the tympanum is inflated.

The appearances presented by a healthy tympanal membrane should certainly be accurately scanned by any one who attempts to practise aural surgery, just as much as the normal sounds of respiration or of the heart should be learned by any one who proposes to study auscultation. We know not where the student can so well seek for the necessary information to guide and assist his own observations as in these nine pages of Mr. Wilde.

In speaking of *wounds and injuries* of the membrana tympani, Mr. Wilde attributes their most frequent cause, apart from direct mechanical violence, to which we have already adverted, to sudden and violent concussion of the

atmosphere, as in the discharge of heavy artillery; to diving deeply into, and remaining unusually long under, water; to prolonged coughing, as in pertussis; to hard blowing of the nose; to severe congestion of the head, as in a fit of intoxication, &c. A sergeant of artillery informs him that "many of his men say that they have seen hemorrhage occur from the ear, but it is not so frequent as is supposed; dulness of hearing is, however, very common, especially among old gunners. The effect of position, with reference to the gun, is peculiar; those men who stand nearest the muzzle feel the report most, but all who are to leeward suffer more than those who are to windward. Brass ordnance make a sharper report and ring louder than iron guns, the usual effect of which, as I myself have experienced, is that of receiving a smart blow upon the tympanum; this, however, soon passes off, and leaves a singing or tingling sensation in the ear for two or three days. Another peculiar sensation is that of having water in the ear, as after bathing. After some practice, the ear becomes accustomed to the shock, and men learn by experience where to stand so as to feel the concussion least." Occasionally, too, paralysis of the facial nerve coincides with that of the auditory, as in an instance recorded by Mr. Wilde.

With regard to the duty of the surgeon, when called to a case of injury to the membrane, Mr. Wilde says: "I believe that the best treatment which can be adopted for recent injuries of the membrana tympani is to let them alone, unless inflammation should arise, when this must be met by local depletion, &c. It is remarkable that whilst we experience the greatest difficulty in keeping open a perforation made with a surgical instrument, accidental openings seldom close." This fact is less remarkable when we consider the greater violence done in the latter than in the former case; the last partake more of the character of incised, the first of contused and lacerated wounds.

Inflammations of the *membrana tympani* receive from Mr. Wilde a large share of attention, not more, however, than they deserve, considering not only their intrinsic importance and the serious consequences which they entail, but also the fact, according to the author, that inflammation of the *middle ear* always, and at the very commencement, is shown by the appearance of the *membrana tympani*. He says, indeed, "I do not believe it possible for one to exist independent of the other for any length of time; no more than an ophthalmia can be circumscribed, or that we can by the term iritis define a single uncomplicated inflammation of the membranous diaphragm of the ocular chamber."

The term *myringitis* is applied to inflammation of the *membrana*, and *tympanitis* to that of the *cavitas tympani*.

Mr. Wilde treats of inflammation of the membrane under the following divisions:—

1. Acute inflammation of the *membrana tympani*, commencing in its fibrous layer, accompanied by phlogosis of the cavity of the *tympanum*; frequently of a rheumatic character.
2. Subacute inflammation, unaccompanied by pain.
3. Syphilitic inflammation.
4. Strumous inflammation, generally in the mucous layer, with mucous engorgements of the *tympanum*.
5. Chronic inflammation, with or without inflammation of the cavity of the *tympanum*.
6. Inflammations accompanying the exanthematic and other fevers, extending from the *tympanum*, and generally producing *otorrhœa*.

We cannot pretend to follow Mr. Wilde through his instructive and elabo-

rate descriptions of these states of the membrane. Suffice it to say, that they are to be investigated after the manner already pointed out; and, that they are revealed by modifications of vascularity, secretion, and sensation, just as analogous tissues in other parts of the body give evidence of the inflammatory condition. There is nothing specific or peculiar in the diseases of the tissues composing the ear, differing from those of the same kind of structures elsewhere; and we regard it as one of the excellences of Mr. Wilde's book, and as a sufficient proof of his veracity, honesty, and sound pathological views, that he does not attempt to magnify the difficulties attending the study of one of his favourite branches, and consequently to trumpet forth his own praises for having so happily surmounted them, as is too apt to be the case with *specialists* in medicine.

We shall cite his remarks, here and there, upon a few topics considered in this portion of the volume.

In detailing the symptoms of *acute myringitis*, he says:—

"I have known a man to be treated for inflammation of the brain who merely laboured under inflammation of the ear; and, on the other hand, a very curious impression exists among, and is too frequently acted on by the profession, that earache is a neuralgic affection. To this very general mistake we must attribute the practice, so frequently and empirically resorted to, of pouring into the ear the various nostrums, sedatives, and stimulants, calculated to allay pain in external parts. So rare is true neuralgia of the ear, that Dr. Kramer says he 'never observed earache without evidence of inflammation, either of the meatus or of the membrana tympani.' Although I am not prepared to go the length of saying that such an affection does not occasionally exist, I must say, that I cannot tax my memory with more than one or two instances of so-called 'nervous otalgia,' for which I have been consulted, that upon a careful examination I could not discover some direct visible cause for it; and I must, therefore, with Dr. Kramer, 'deny to those persons the right of pronouncing a decisive opinion upon the existence of a nervous otalgia, who do not understand investigating the membrana tympani in bright sunshine, and with the aid of the speculum, and who are not in the habit of doing it.'"

The antiphlogistic treatment should be resorted to in this affection. The patient should remain in a warm, well-ventilated apartment; or, if compelled to go out, the cold air should be carefully excluded from the ear; in severe cases, he should be confined to bed. General bleeding is rarely necessary; but a few leeches, applied in the manner already described, should take blood from around the external meatus, and the abstraction should be repeated, if necessary, followed by the application of moist heat. The general treatment is the same as that employed to relieve other inflammatory affections; and the use of mercury should be unhesitatingly resorted to, if the symptoms do not speedily yield to the means previously tried. The state of the meatus and the membrana tympani should be examined daily by the aid of the speculum; if an ulcer is detected, it should be touched with a solution of nitrate of silver on a camel-hair pencil. Mucous or purulent secretions should be gently removed by syringing with simple tepid water. No astringent injections being employed during the existence of active inflammation.

Should the *mastoid process*, or the soft parts covering it, become implicated, and relief should not follow the remedies already enumerated, and particularly if there be any sense of fluctuation, however obscure, Mr. Wilde insists upon the importance of freely cutting through to the bone.

Under the head of the treatment of *subacute myringitis*, we find the following suggestion, which is new to us. To relieve the tinnitus aurium, which frequently remains for a considerable time after the inflammation has ceased,

Mr. Wilde says that he has found the preparations of the *arnica montana* of decided benefit; indeed, he observes:—

"It is the only medicine with which I am acquainted which seems to possess a specific power over this annoying and usually most intractable complaint. The preparation which I find most efficacious is the tincture, both of the flowers and the leaves, of which the patient should commence by taking fifteen drops in a tablespoonful of the infusion of arnica, with some aromatic tincture, three times a day. After a few days, the dose should be increased one or two drops daily, till it reaches thirty, or even more, unless headache or giddiness should be produced, when we should at once lessen the dose, or omit the medicine altogether for a time. The state of the bowels should be carefully attended to during the administration of this drug."

This medicine should only be employed after the original cause of the tinnitus has subsided, or when it exists without any apparent lesion of the parts. The formula for the preparation of this tincture is: "One ounce and a half of the *flowers* to a pint of rectified spirit of wine; macerate for fourteen days and strain; or, of the *leaves*, the same quantity infused for a similar period in proof spirits." In prescribing them, Mr. Wilde usually orders equal proportions.

We find a very interesting section on *otitis occurring in connection with ophthalmia*, a complex form of disease, met with most commonly in strumous children, in whom the aural affection is very apt to pass unnoticed, from the simple fact that the condition of the eyes is the most apparent and the most unpleasant.

The complication may be more serious than could be anticipated.

"If we look," says Mr. Wilde, "into the statistics of deaf-dumbness in different countries in Europe and America—and the same holds good with respect to the investigations instituted in Ireland on this subject—we shall find, among the causes of acquired mutism, 'diseases of the eyes' frequently recorded. Now, as we cannot suppose that diseases of the organs of vision could of themselves produce total deafness, leading to complete loss of speech, we are forced to the conclusion that, with the ophthalmic disease, co-existed some insidious aural affection such as I have described, and so intense as to produce deafness, and, in very young persons, consequent loss of speech." After citing a case in point, he observes: "In cases of this nature, the patient should be encouraged to speak as much as possible, and on no account to employ signs or finger-writing. He should be spoken to in a clear, distinct tone of voice, not too loud, and the mouth should be removed from his ear gradually day by day, so as, if possible, to educate the sense, and increase the hearing distance; he should also be made to read aloud every day," &c.

Passing over the important sections on *chronic inflammation* of the *membrana tympani*, *morbid deposits in*, and *collapse of*, the same, not to enumerate others, from all of which we might advantageously quote, we come to the consideration of *artificial perforation* of the membrane. This is an operation which was at one time vastly praised and talked about, but concerning which we now hear correspondingly little.

The conditions for which this proceeding is commonly recommended are closure of the Eustachian tube, accumulation of extraneous matters within the tympanum, and thickening of the *membrana tympani*. Mr. Wilde does not consider the operation as either required or proper in the first class of cases; and in those instances of permanent thickening and opacity of the membrane, where the proper treatment has failed to induce thinning, he looks upon the operation with doubt, because the condition of the *membrana tympani* above specified is usually merely coincidental with "a general thickening and disorganization of

the investing membrane of the middle ear, perhaps that of the labyrinth also," which is beyond our vision. But, when we are convinced that the cavity of the tympanum is filled with uncoagulated blood, or other fluid, which cannot find exit through the Eustachian tube, he thinks that an aperture should be made to give it escape.

To perforate the membrane, he discards all complicated instruments; because the operation cannot be done safely excepting through the speculum, along which a stream of sunlight should pass to the bottom of the canal, and the perforating instruments in use fill up the tube of the speculum so much, that the eye cannot watch and guide their motions; and because, also, most of them inflict a great deal of pain. He therefore prefers to use a narrow knife, with a sickle-shaped blade, cutting on both edges; and, having introduced the speculum, and made the patient inflate the tympanum, so as to render the membrane tense and pressed outwards, he gently inserts the knife through its inferior thin and vibrating portion, draws the blade then downwards and forwards, and makes a simple incision of the membrane, about a line and a half long. If left to itself, this incision would speedily close; he therefore touches its edges lightly with lunar caustic, as often as may be necessary, to render the opening sufficiently large.

We pass on to the sixth chapter, which treats of *diseases of the middle ear and Eustachian tube*.

Much has been said and written about *throat* deafness, and the frequency with which disease of the throat produces deafness. It appears to us, that Mr. Wilde has taken the proper view of this question. He says:—

"Viewed in the recent state, by making a central vertical section through the base of the skull, mouth, and pharynx, the lower opening of the Eustachian tube presents an obliquely upright elliptical slit or fissure, about half an inch long, with thick, round, and slightly prominent lips. Placed thus behind, and so much above the hard and soft palate, it is manifest that the tonsils, even when enlarged, cannot press upon its partially open mouth without first coming in contact with the palate, and lifting upwards and backwards the velum, which, it is well known, never occurs. When the tonsils are in a state of chronic enlargement from hypertrophy of their follicles, thickening of their mucous membrane, and cheesy, calcareous, or other abnormal deposit within their structure, they first approach one another, and consequently encroach upon the size and shape of the isthmus faucium, then towards the cavity of the mouth, and afterwards into the bag of the pharynx. I have never seen or heard of a preparation showing the greatest possible enlargement of the tonsil, in which it pressed upon the trumpet-mouth of the Eustachian tube. Anatomists will, therefore, find it as difficult to believe that enlarged tonsils produce deafness, as practical surgeons to believe that their removal can in any way relieve loss of hearing. When deafness co-exists with enlarged tonsils, I believe that it is produced by the thickening of the mucous membrane extending into the Eustachian tube, or into the tympanum."

The diseases of this part of the ear are classified in the same manner as those of other portions of the organ—malformations, injuries, inflammatory, morbid growths, and deposits. The sections devoted to inflammations are particularly worthy of study.

Diseases of the *internal ear* are considered in the seventh chapter. As elsewhere, a minute account of the anatomical structure and arrangements of the parts concerned precedes the pathological inquiry. The subject which appears to receive the largest share of attention is *nervous deafness*.

As has already been shown, Mr. Wilde is strenuous in maintaining that nervous deafness, unaccompanied by organic lesion which is cognizable to our senses, where the Eustachian tube is pervious, the mucous membrane lining

the tympanal cavity healthy, the membrana tympani in a natural condition, and the external auditory canal sound, is rarely met with. And, bearing in mind the lamentable ignorance on the subject of aural pathology with which the profession is so generally chargeable, we must agree with him in thinking that the term in question is commonly used as a cloak for want of knowledge and inability to make an accurate diagnosis.

However, if the absence of organic disease be established, the surgeon must determine whether the seat of the difficulty be in that portion of the auditory nerve which is expanded within the labyrinth, or at some point of its course between its origin in the brain and its exit from the cranium; and whether the paralysis depend upon congestion, softening, atrophy, pressure, or any other of the numerous diseases to which the encephalon is liable. Deafness is sometimes the forerunner of apoplexy, epilepsy, and paralysis, just as amaurosis is.

Mr. Wilde examines carefully the views of Kramer and others upon this subject, and passes in review the various plans of treatment employed. But, upon the whole, we do not find anything very satisfactory concerning this distressing affection, excepting the conviction that it is in the great majority of cases dependent upon some inflammatory or other morbid organic change in the auditory apparatus; and that the treatment should consist in preventing this originally, or in removing it or its effects, according to general pathological and therapeutical principles, if it has already progressed. Any specific treatment for deafness *per se* seems to be empirical.

The eighth chapter is devoted to *otorrhœa*. Although this is not so much a disease as an effect and a symptom of many diseases of the ear, yet, from its great frequency and importance, the author has given it a separate chapter.

From a table, cited already, it seems that about 1 in every 3½ cases (647 in 2,385) presented discharge of the ear as a symptom. Of these, 64 were complicated with polypi; in 55, the membrana tympani was either perforated or destroyed. As is well known, otorrhœa is most common in infancy and youth. The duration varies very much. Of 83 persons, 23 had suffered from a month to a year; 12, from two to three years; 11, from four to five years; 13, from six to ten; and 13, more than ten years.

The symptoms preceding or accompanying the discharge may be those of active inflammation, or they may be more or less wanting, the otorrhœa itself being the most prominent and distressing symptom. The author presents a very graphic picture of a well-marked case, passing from its ordinary to the more aggravated phenomena.

Under the head of the causes of this affection, Mr. Wilde says that porrigo, crusta lactea, herpetic, and other eruptions extending to the ear, produce it, particularly in unhealthy children. Mechanical injuries, such as blows or the introduction of foreign bodies, will, no doubt, occasion otitis, and subsequently discharge; but unless in persons of marked strumous cachexia, or very much broken in health, it seldom continues for any length of time, or proceeds to anything serious. Under the head of mechanical injury, has been counted impaction from hardened wax; but the author has never witnessed, nor does he think it likely, from the manner in which it is formed and retained, to cause otorrhœa. He has several times met with cases of otitis ending in otorrhœa, produced by improper use of the syringe, under the supposition that the accompanying deafness arose from impacted wax, where no wax existed. Fevers of every kind, especially the exanthemata, often induce discharges from the ear. Cold bathing, too prolonged, or indulged in too frequently, will also give rise to otorrhœa. Mr. Wilde does not think that syphilis and gonorrhœa are as chargeable with this complaint as has been supposed by some writers.

The morbid alterations of structure, upon which the discharges directly depend, are at first those of simple inflammation of the membrane lining the auditory canal and the membrana tympani. If the ear were carefully examined with the speculum, the tube would probably be found dry, slightly reddened, and tender; the ceruminous secretion wanting or scanty; the membrana tympani deprived of its pearly polish, and slightly pinkish, and red vessels would be discerned in it, coursing along the site of the handle of the malleus. A little later, the secretion of wax would have ceased, the cuticle lining the meatus become thickened and readily detachable in whitish flakes, beneath which would ooze a thin, sero-purulent discharge; the membrana tympani would be found more vascular, the thin pellicular cuticle covering its external surface would be gradually thrown off with the discharge, and then the membrana would look red and villous, like the conjunctiva of the eyelids in catarrhal ophthalmia. Still later, the cuticular lining would have become cast off, the tube converted into a mucoid secreting surface, its walls thickened, and its caliber diminished, the granular state of the membrane increased, and perhaps polypous excrescences would be found springing from the posterior inferior surface of the tube, where the bone and cartilage unite. Finally, the membrana tympani may have given way by ulceration, the middle chamber become opened externally, and some of the ossicula, particularly the ineus, may have been discharged. From this period, the disease may still increase in its ravages, even to a fatal issue.

Mr. Wilde criticises severely, but we cannot say unwisely, the common inculcation of physicians, as well as of people generally, which forbids all efforts to "dry up" these discharges. He says, after passing in review many of the cases in which bad effects are said to have followed the checking of an otorrhœa: "I have not been able to discover one well-authenticated instance where disease of the head supervened as a consequence of checking otorrhœa, in a case where the condition of the ear had been previously ascertained, and where disease of the bone had not previously existed. Men do not distinguish between the *post hoc* and the *propter hoc*; but, mixing up cause and effect, regard a symptom as a disease."

The *prognosis* must, of course, depend very much upon the cause, severity, and duration of the disease; the extent of the affected parts; the presence or absence of morbid growths; and the age, habits, constitution, &c. of the patient. But, "so long as otorrhœa is present, we never can tell how, when, or where it will end, or to what it may lead."

In the *treatment* of this complaint, Mr. Wilde trusts mainly to the local use of the salts which are commonly employed as collyria, especially to the nitrate of silver in solution; it should be applied by means of a camel-hair pencil, or a piece of soft sponge attached to a probe. The strength of the caustic solution should vary according to circumstances, as in its employment in eye affections, from three to twenty grains of the salt to an ounce of water. The caustic may be applied every second or third day, and in the intervals the ear should be carefully syringed with tepid water, so as to free it from the secretion which collects in it. Moderate leeching should in certain cases be combined with this topical treatment, as also the judicious use of blisters, or other counter-irritants. The constitutional means should depend upon the nature of the case; mercurials, iodide of potassium, cod-liver oil, and the preparations of bark, may be mentioned as the most important. The granulations which not unfrequently sprout from the membrana tympani are best removed by touching them with solid nitrate of silver.

The last topic which we shall notice in this chapter is *polypus*, concerning which Mr. Wilde has written many interesting and instructive pages.

Polypi, says he, are frequent complications of otorrhœa, occurring at every period of the complaint. Their size varies from that at which they readily escape detection, unless the investigator be skilful in his examination, to such as shall entirely fill the external auditory passage. They are always accompanied by discharge, and are frequently its chief cause. In eight cases out of a dozen, they sprout from the site of the ceruminous glands in the posterior wall of the meatus; they usually grow singly; sometimes they are attached by a pedicle, sometimes are seated on a broad base. Some authors, indeed aural surgeons generally, describe a form of polypus sprouting from the surface of the membrana tympani; but Mr. Wilde has never seen such, and thinks that those which have been supposed to be thus seated really sprang from the cavity of the tympanum, and passed through a rent in the membrane, presenting a mushroom-like or expanded head, which spread over the surface of the membrane; such growths, however, can always be lifted from the membrane, and their true source then recognized.

So long as the polypus is still contained within the meatus, they are ordinarily smooth and polished on their surface, and of a florid red colour; but as soon as they appear externally, they become pale, cuticular, and comparatively insensible. In form they may be uniform, or more or less deeply lobulated, botryoidal. Mr. Wilde describes and figures six kinds of polypi, differing in structure, size, shape, and consistence.

To cure them, he recommends their removal by knife or scissors, or preferably by the *snare*. The instruments which he employs are described and illustrated by drawings; the *snare* which he has invented is a beautiful little instrument, and one which, we should think, would accomplish its purpose admirably well. (We may remark, *en passant*, that Mr. Gemrig, of this city, in Eighth Street, has for sale all these instruments recommended by Mr. Wilde, made from the drawings in this book, and from patterns belonging to Dr. Hewson.) After the tumour has been detached, lunar caustic should be carefully applied to the seat of its attachment; this is preferable to any other caustic substance.

In an *appendix*, Mr. Wilde presents an exceedingly interesting essay on deaf-dumbness. His position as one of the *Irish Census-commissioners* not only induced him to direct special attention to this subject, but of course afforded him abundant facilities for investigating it, at least with reference to his own country. And we cannot but say that, so far as we know, this appendix embodies the most complete report on this interesting and pitiful infirmity with which we have hitherto been favoured. Our notice of this volume has, however, already reached a sufficient length, and we will not examine this concluding chapter.

A few general remarks, and we have done.

The uniform good sense and sound discriminating judgment which characterize Mr. Wilde's work, together with the absence of all attempts to throw a veil of mystery over this specialty in pathology, as though it required for its successful cultivation knowledge of a peculiar kind, or some special endowments different from those which enable a man to practise advantageously in other departments of medicine, must of themselves commend this work to the profession; and we entertain no doubt that those who study it will feel, with ourselves, that it is the best guide and assistant in the practice of aural pathology which exists in any language. The general inculcations upon which the author lays most stress are the necessity of instituting a careful and

thorough examination of the ear, both with and without the aid of the speculum ; the rarity of *nervous deafness*, as it is commonly called ; the important role which inflammation, in various forms and grades, plays in aural affections, some traces or evidences of which are observable in the vast majority of cases ; and, finally, the necessity of combating or removing the effects of inflammation, in most instances, if we desire to prevent the occurrence of deafness and other more serious results, or of removing them, if they have been already produced.

Dr. Hewson, the American editor, has found his duties light and agreeable. He has not attempted to make many additions, where very few seemed to be needed ; an apposite note introduced here and there shows, however, that he has himself been a careful student of the subject. We must say, too, that he has somewhat improved Mr. Wilde's English. In his particular attention to the matter of his book, and amidst the multiplicity of his private and public avocations, the author has suffered many inaccuracies and inelegancies of style and diction to obtrude themselves upon his pages. As an instance, we quote the following sentence—one of many in which the same error occurs : "If this obstruction be complete, *and that* we have reason to suppose," &c. ; the editor has very properly omitted the particle which we have italicized. Possibly, Mr. Wilde may regard the correction as a specimen of what the *British and Foreign Medical Review* some years ago facetiously styled "the American variety of the English language;" but if it be so, we honestly think that the child has improved upon the parent.

F. W. S.

ART. X.—*Homœopathy: its Tenets and Tendencies, Theoretical, Theological, and Therapeutical.* By JAMES Y. SIMPSON, M. D., F. R. S., &c. Third edition. Edinburgh, 1853 : 8vo. pp. 292.

WE have here an octavo volume of nearly 300 pages against homœopathy. Many physicians will be inclined to treat this announcement with the question, *eui bono*—of what use is it thus to make war upon this delusion ? For some maintain that it is better to let it entirely alone, and take the broad ground that physicians will better promote the interests of medical science and our profession by quietly pursuing their own course, and treating all quackeries and delusions with silent contempt. And they therefore think that Dr. Simpson and others, who have written exposures of homœopathy, have not only done no real service to science, but have injured both our science and our profession by the notoriety and importance which they have given to this delusion by their attacks.

The number in our profession who hold this opinion we do not suppose to be very large, and yet it is large enough to make it proper for us to examine their views. If they are incorrect, their influence upon the attitude of the profession towards quackery ought to be removed ; and if, on the other hand, they are correct, the tactics of medical men in relation to this evil should be materially and almost universally altered.

When errors prevail in regard to any subject, it is commonly deemed important that they should be exposed. If medicine be an exception in this respect, there must be some peculiar reasons for this, arising from the nature

of the subject, or the character of the errors which prevail in regard to it. Let us see, then, what are the alleged reasons for the opinion that errors on medical subjects ought not to be exposed or attacked.

The propriety of letting medical delusions alone, does not seem to be argued from any strong confidence in the power of truth in regard to medicine. Those who hold this view of the subject, do not appear to expect that any of the dupes of quackery will be undeceived by simple presentations of truth; they are, therefore, not only opposed to an exposure of their errors, but the attempt to introduce into their minds any positive truth in regard to medicine is deemed useless. They suppose the victims of medical delusions to be incurable; they consider them as belonging to a class that will have quackery at any rate; a class which have a peculiar mental condition, the removal of which is absolutely essential to a deliverance from their errors. No exposure of their errors, and no presentation of truth, it is thought, can effect this; it can only be done by an entire change of the mental habits.

That there is such a class, we know; and it includes many of the most ingenious and talented minds in the community. It is a class which is made up, to a considerable extent, of thinkers from all the various walks of society, from the illiterate as well as the learned. Those who belong to it do not commonly believe in one delusion alone, but in many; often, they give their credence to all the novelties which come along. The strong believer in homœopathy, for example, is apt to believe to the full in phrenology and animal magnetism, as they are commonly exhibited, in clairvoyance, in table-movings, and even in spirit-rappings.

But this class is by no means so large as is supposed by those who maintain that exposures of quackery are useless. The peculiar habit or cast of mind which characterizes this class is not to be seen, at least to any great extent, in the vast majority of those who are the subjects of medical delusions. This majority is made up of widely various minds, that are attracted to quackery by as widely various considerations; and most of them are only occasional dupes, instead of being fast bound by the spirit of delusion. It is this large *flouting* class, as it may be termed, of the patrons of quackery, that can be reached by exposures of their errors, and candid presentations of the truth.

We are fully aware of the difficulty, perhaps impossibility, of redeeming from error those who are fully possessed by the spirit of delusion—a spirit which may well be termed *legion*, from the multiplicity of the errors into which it leads its victims. But it is to be remembered that the possessions are mostly partial, and not full possessions. We would, therefore, make a wise discrimination in selecting the subjects of our efforts. While we would leave the inveterate cases to themselves, we would labour, as opportunity offers, to cast out the devil of quackery from those who are only partially possessed. At the same time, we would make use of the incurable cases as examples to show whither the spirit of delusion tends, in order to induce those who are partially possessed to submit themselves to the proper process of cure.

We have had some personal experience in relation to such efforts with the dupes of homœopathy, and we have found that many of them could be made to see the points on which they have erred, and could thus be delivered from their delusion. We have no doubt that if such efforts were made quite commonly by physicians, in their daily intercourse with the community, the ranks of the patrons of homœopathy would be largely thinned. There are many among them who are in a false position, simply because the subject has not been properly presented to them, and physicians are commonly greatly at fault in neglecting their duty towards such individuals.

It is to be recollect that many, who exhibit a sound judgment on most other subjects, are yet entrapped by delusions in medicine. The reason is, that they are not aware of the peculiar difficulties which beset medical investigations, in consequence of the complicated nature of the subject. Not to go into this point fully, we will only remark that it is an acknowledged principle in regard to evidence, that the more multiplied and complicated are the agencies bearing upon any result, the more difficult is it to estimate the amount of influence of any one of these agencies. In the progress of a case of sickness towards recovery, there are many and complicated agencies at work, in connection with the remedies used; it is therefore difficult to decide upon the exact amount of influence which these remedies exert. Yet the community, and, to some extent, physicians, too, adopt conclusions on this point as hastily as they would in relation to results which are brought about by few and simple agencies.¹ The plain presentation of this point alone, with some appropriate illustrations, we have found to be sufficient to convince many of the falsity of their conclusions in regard to the efficacy of infinitesimals. We have been able to make it clear to them that, as physicians themselves are often deceived in regard to the agency of remedies, as an abundance of facts from the annals of medicine show, much more readily can persons out of the profession be deceived, in the limited range of evidence which comes under their observation in regard to practical medicine.

Such individuals can also be made to see that this failure to apply the rules of evidence aright is the cause of all the wayward beliefs which are afloat in the community in regard to a great variety of subjects. We refer to the credence given to animal magnetism, phrenology, table-movings, &c. The grand difficulty manifestly is, that the rules of evidence are loosely applied to these pseudo-sciences; and the modicum of truth which exists in some of them is not, therefore, sifted from the mass of error with which it is mingled. After developing this point with apposite illustrations, we could show such individuals that the great radical fault of the community, of which we have spoken, is very strikingly and extensively exhibited in regard to practical medicine, mostly because this subject is of so complicated a character.

But, besides these general considerations, there are some special circumstances existing at the present time which call imperatively for the putting forth of efforts on the part of our profession in opposition to quackery. These we will briefly notice.

No one can avoid observing the fact that homœopathy has entrapped many who have not hitherto been given to quackery; and it is chiefly because it comes to them with a more plausible show of reasons than quackery has been accustomed to present. Its pretensions have a more scientific guise, and its appeals to facts are better sustained than the appeals put forth by other forms of medical delusions, simply because it does no positive harm, and therefore does not interfere with the curative efforts of nature. Neither can it fail to be seen that quackery, as a whole, has appeared in these latter days with a different phase from any which it has formerly assumed. Hitherto, though sometimes monstrous, it has never been as formidable as now; its tactics were never as abundant and complicated, and as shrewdly managed as at the present time; it never before waged a systematic and prolonged warfare against the medical profession. Now we have various sects; the homœopathists, the eclec-

¹ If the reader would like to follow out this subject, he will find the views of the writer of this article in an article on the Nature of Evidence in Practical Medicine, in the *New Englander*, for November.

ties, the hydropathists, the Thompsonians, &c., all united in an onset upon what is called "regular medicine," and the nostrum-mongers join in the general hue and cry.

There is little respect now, on the part of the people, for authority in medicine. Formerly, although there was much running after popular quackeries, as they came up one after another, still, the medical profession was considered, on the whole, as the repository of most of the valuable experience which had been gathered in relation to medicine. Regularly educated medical men were therefore, for the most part, relied upon, at least by all the intelligent. But now it is far otherwise. Quite a large part of what is ordinarily considered the intelligent portion of society has, in some communities, swelled the ranks of the patrons of quackery. It is true that they are sometimes the followers of educated men—perhaps renegade members of our profession—but they are certainly far from being as scrupulous in regard to the evidences of education as they are in the selection of a lawyer or a clergyman. Shallow and illiterate men are often seen duping the intellectual and learned, as well as the ignorant wealthy and the fashionably refined. Especially is this the case if there be a foreign accent, long hair, and references to an European diploma, which, however, is never exhibited, and, if inquired for, is stated to have been lost. Even where the show of regard to education is made, the tendency evidently is to obliterate the distinction between educated and uneducated men in medicine.

With this state of war upon the medical profession, and this disregard of authority in medicine, there is a strong disposition in the popular mind to dabble with medical subjects, and to utter its opinions on them with the greatest freedom and the most positive assurance. The community is all astir on these subjects, and they furnish prominent topics of conversation in all circles. The merits of remedies, and modes, and doctrines, and physicians are canvassed freely, and positive conclusions are arrived at with a facility which would be only warrantable if medicine were a perfectly simple and uncomplicated subject; and as various systems are claimants for the public favour, there is a singular medley of opinions in the popular medical mind. Sometimes the most incongruous opinions and practices may be observed in individual cases. The firm believer, for example, in the *sole* law of Hahnemann, may be seen subjecting himself to the administrations of Priessnitz, not dreaming that there is any inconsistency in such a course.

While all this is going on in the community, there is quackery in the profession itself. Homœopathy even is among us. Although the profession has generally taken proper action on this subject, and excluded from its ranks those who have adopted this delusion, in some quarters this has not been done. In the State of Massachusetts, there are avowed homœopathists, who are in good standing in the State Medical Society. Whether it is so in any other State we are not informed. In Connecticut, physicians who become homœopathists are expelled from the Medical Society, and we believe this is the general practice throughout the country. In Great Britain, the evil, so far as we can learn, is worse than it is in this country; even some high places in the profession are occupied by homœopathists, as, for instance, the chair of practical medicine in the University of Edinburgh, by Dr. Henderson. The profession, however, has no control over such a post, and it is proper to state that, as a body, they have in Edinburgh taken decisive action in relation to homœopathists.

But homœopathy is not the only quackery that exists within our own ranks. The quackery which is now so common in connection with certain specialties

shows an alliance to homœopathy in its tactics, and in the character of its appeals to the popular favour.

The influences, then, which are at work, both in and out of the profession, indicate most clearly the necessity of some positive neutralizing influences on the part of the honourable and the true among medical men. We believe that the present state of things is not to continue long; that society is in a sort of transition state in regard to medicine; and that the manner in which it shall come out of the medley of opinions which now agitate it, will depend very much upon the influence which shall be exerted upon it by our profession. Our duty, therefore, plainly is, to mould as we can the views and opinions of intelligent men, and through them affect the masses that are guided by them; and, in order to do this, we must enlighten them as to the causes of their errors. If this be done, it will strike an effectual blow at the quackery which is in the profession, as well as that which is out of it.

Let us not be understood to mean that the whole profession must engage in a general onslaught upon quackery. We are not in favour of either frequent or ill-natured attacks upon any form of it, however ridiculous or provoking it may be. We only argue for candid expositions of medical errors, both in private and in public, when proper opportunities offer themselves. We would have no one step aside from the duties of his profession to seek for such opportunities; we would only ask him not to neglect them as they fall in his way.

Let us suppose, now, that Dr. Simpson, Dr. Holmes, and others who have written exposures of the fallacies and the falsehoods of which homœopathy is made up, had never written a word on the subject, what would have been the consequence? Not only would homœopathy have been more abundant than it now is in the community, but it would have made greater inroads upon the profession itself. Very few of those who have left us to become homœopathists have done so from a real conviction of the truth of the "sole law" of Hahnemann. The great majority of them have given up both science and honour for the sake of gold; and the temptation, we fear, would have proved too strong for many more, had not argument and wit been so successfully employed in exposing this delusion.

We propose now to glean from the book of Dr. Simpson some things which may assist the reader in putting forth the efforts which we recommend. In doing so, we shall have special reference to those points on which even intelligent men very commonly err in relation to the character and claims of homœopathy.

It is very often said to physicians, by the dupes of this delusion, "I see that you are getting to be a little homœopathic, for you often use very small doses, and, on the whole, give little medicine, compared with what was commonly used by physicians some years ago." They who use this language, though often very intelligent persons, do not appreciate the difference between small and infinitesimal doses. They need to be enlightened on this point, and it is very easily done. We have been occasionally amused at the effect produced on the minds of believers in homœopathy, by statements and calculations in regard to the minuteness of the little doses.

That the reader may have the means of meeting such cases, if he has them not already, we will quote an explanatory table of dilutions from our author. We will premise a description of the process of making the dilutions or attenuations, which we take from Hahnemann's *Materia Medica Pura* :—

"To obtain the hundredth degree of potency, mix two drops of alcohol with equal parts of the juice of the plant, and then mix this with ninety-nine or one hundred drops of alcohol, by means of two strokes with the arm from above

downwards ; by mixing in the same way one drop of this dilution with one hundred drops of alcohol, you obtain the ten-thousandth degree of potency, and by mixing a drop of this last dilution with another one hundred drops of alcohol, you obtain the millionth degree. This process of spiritualization or dynamization is continued through a series of thirty phials up to the thirtieth dilution."

Substantially the same plan is pursued with other forms of medicine, as well as the juice of plants. Now for the table :—

" *Table showing the quantity of alcohol or fluid required to dissolve one single grain or drop of a homœopathic drug (as sulphur, aconite, etc.) down into the following homœopathic attenuations or dilutions.*

No. of attenuation, dilution, or potency.	Relative quantity of the drug, and of the quantity of alcohol in which it is dissolved in each attenuation.
1st Attenuation.—One grain, or drop, in one and a half teaspoonfuls of alcohol.	
2d Attenuation.—One grain, in twenty-one fluidounces of alcohol.	
3d Attenuation.—One grain, in two thousand and eighty ounces; or in one hundred and four pints of alcohol.	
6th Attenuation.—One grain, in thirteen million gallons; or in two hundred and six thousand hogsheads; or in fifty-one thousand tuns of alcohol.	
9th Attenuation.—One grain, in a lake of alcohol with a volume of about fourteen cubic miles; or in a lake of fifty fathoms in depth, and presenting two hundred and fifty miles of square surface.	
12th Attenuation.—One grain, in a sea containing about fourteen million cubic miles of alcohol; or in a quantity of fluid equal to a sea six times the size of the Mediterranean Sea.	
15th Attenuation.—One grain, in an ocean of fourteen billion cubic miles of alcohol; or in an ocean about forty-six thousand times greater than the whole waters contained in all the oceans of the earth.	
24th Attenuation.—One grain, in an ocean of fourteen quintillion cubic miles of alcohol; or in a quantity sufficient to make one hundred and forty masses, each filling a sphere extending from limit to limit of the orbit of the planet Neptune.	
30th Attenuation.—One grain, in an ocean of fourteen septillion cubic miles of alcohol; or in a quantity sufficient to make one hundred and forty billion spherical masses extending from limit to limit of Neptune's orbit; or in a quantity equal to many hundred spheres, each with a semi-diameter or radius extending from the earth to the nearest fixed star."	

(P. 285.)

On this, Dr. Simpson remarks :—

" This thirtieth or last of these attenuations or dilutions is, according to Hahnemann, the most appropriate dose of every drug in every disease. For we have already found him strongly and solemnly declaring that 'it holds good, and will continue to hold good, as a homœopathic therapeutic maxim, not to be refuted by any experience in the world, that the best dose of the properly selected remedy is always the very smallest one in one of the high dynamizations, X (or the 30th dilution), as well for chronic as for acute diseases.' Now, this 30th dilution, which Hahnemann thus asserts as indubitably '*the best dose*' of all drugs for chronic or acute diseases, consists of a decillionth of a grain of the drug used; or, in other words, it consists of a minute globule of sugar, moistened by being simply dipped in a drop out of an ocean of fluid one hundred and forty billions (or 140,000,000,000,000) times as large as our whole planetary system, and which enormous ocean has been medicated for the purposes of homœopathy, by having dissolved and mixed through it *one single grain* of the appropriate drug." (P. 286.)

The sugar globules, so much used, are medicated by merely being touched with the moistened stopper of the phial containing the dilution. The amount of moistening might differ, we suggest, in different cases ; but this has never troubled the mind of any homœopathist, nor need it do so, as it will make no manner of difference in their efficacy.

The "dilutions," or "attenuations," or "potencies," or "dynamizations" (which are synonymous terms), included in the table above, are divided into four series, which are thus given by Hempel, one of the standard homœopathic authors :—

"1. 'The LOWER potencies or preparations range from the original forms of drugs (tinctures, or primitive chemical, vegetable, mineral, or metallic substances) up to the 6th attenuation.'

"2. 'The MIDDLE potencies (range) from the 6th to the 30th attenuation.'

"3. 'The HIGHER potencies, from the 30th to the 200th.'

"4. 'The HIGHEST potencies, from the 200th to any attenuation above that number.'" (P. 279.)

But this is not the end of the dilutions. One would suppose that the *ultima thule* must be reached in the thirtieth potency ; but no. Dr. Simpson quotes from prominent homœopathists statements of *undoubted* effects and cures from the 100th, the 200th, and even up to the 2,000th dilution. "To represent the 200th dilution," says Dr. S., "would require a 1 followed by 400 ciphers; and to represent the last of these dilutions would require more ciphers than our printer's font possesses." If what a prominent homœopathist says is true, that "the *less* material the medicine becomes the *more* efficacious it proves," we think that the homœopathists had better go still farther with their attenuation, and get, if possible, still nearer to nothing than they have done ; of course, being careful to dynamize each dilution with the "two (just two) strokes with the arm from above *downwards*," prescribed by Hahnemann. One chemist, more adventurous than the rest, has stretched far ahead of them all, and produced a 40,000th dilution of arsenic. How many ciphers it would take to express this we will not try to reckon ; much less what minute fraction of a grain would be used up if all the inhabitants of the earth should take from this dilution such a dose as a homœopathist would prescribe.

In a Homœopathic Congress (curious word to apply to such an assemblage), this *small* subject was largely discussed. Some of the members were very positive as to the "very remarkable effects" of the higher dilutions, and claimed for them "a more brilliant and signal success" than is realized from the lower, that is, from the 30th downward. The chairman of this wise congress, the erudite Professor Henderson, who, from his station in the University of Edinburgh, is regarded as the Magnus Apollo of homœopaths in the mother country, did not deny the efficacy of the high dilutions spoken of ; but he thought that "there was a total want of evidence of the high dilutions being more potent than the low." And he remarked that "the one fact is *very gratifying*, that from 30 downwards we have *ample* evidence that the medicines do produce curative effects. The only subject of inquiry is, what point is best ? They all do produce an effect, but the difficulty arises from the very fact that they all do produce an effect. But the fact that all dilutions, *from 30 downwards*, *will* produce an effect, seems to me established by the experience of ALL." Dr. Black seemed to have great pity for the benighted ignorance and prejudice of us "allopaths," for though he held "that high dilutions did cure, and cure well," he urged the employment of the lower dilutions, in order to remove "the prejudices their allopathic brethren had against them on account of the infinitesimal doses." We fear his considerate pity will not avail ; for,

to a dull "allopathic" intellect, when it tries to grasp a thing so near nothing as the 30th, or even a lower dilution than that, anything higher would be all the same. In order to appreciate such differences, the mind itself must first be diluted, attenuated, and dynamized, and by *downward strokes*, too.

But these dilutions are efficacious, not only when swallowed, but when *smelled*, also. This mode of administration Hahnemann has dignified with the name of *Olfaction*, for the same reason that the gathering of homœopaths was called a Congress. The *small doses* seem to have engendered a liking for *large words*, and, we may add, *large fees*, too. On this mode of administration of the dilutions, Dr. Simpson remarks:—

"Most men would have supposed that Hahnemann had severely enough taxed the credulity of his followers, when he thus advised them to give their patients in all cases and diseases, both acute and chronic, the drugs which they used in these very infinitesimal doses. To propose to cure all diseases by a *single grain* of the required drug divided among such an infinity of globules, or dissolved in such an enormous ocean, was, one might, *a priori*, suppose, carrying human credulity as far as it would go. In the later periods, however, of his life, and as his 'experience' accumulated upon him more and more, Hahnemann used his infinitesimal decillionths in a still more infinitesimal manner than that. For latterly, he came to recommend his decillionth globules to be *smelled* merely, and not *swallowed* by his patients; and he averred that this smelling or *OLFAC-TION* of them was all that was requisite to produce the desired cure." (P. 61.)

And the "medicinal aura" emitted from dried globules, it seems, it takes a long time to exhaust. For Hahnemann says: "A globule, of which ten, twenty, or a hundred weigh a grain, impregnated with the 30th potentized dilution, and then *dried*, retains for this purpose (of olfaction) all its power undiminished for at least eighteen or twenty years (my experience extends this length of time), even though the phial be opened a thousand times during that period, if it be but protected from heat and the sun's light."

He gives particular directions about the management of this delightfully easy and convenient mode of dosing. He says that in little children, the orifice of the phial containing the wondrous globule "may be applied close to their nostrils whilst they are asleep, with the certainty of producing an effect." In what delightful contrast is this to the nauseous doses with which the horrid "allopaths" *punish*, as the Irish say, the little innocents of the nursery! Whether the homœopaths in this country have introduced to any extent this refinement, we have not learned; but, if they have not, we think them quite remiss, for the efficacy of the smelling of globules rests on the same *undoubted* evidence with that of the swallowing of these doses. Many facts are cited in proof of the efficacy of olfaction. Dr. Crosiero, of Paris, asserts that Hahnemann cured his wife by it of a violent pleurisy in five hours. Dr. Gross is so satisfied of the efficacy of olfaction, from *undoubted* facts, that he often makes a patient wait "for weeks or so" before taking a second smell, and it is not seldom that he finds that one smell is sufficient for the cure. In fact, he cured his horse of the staggers by making him smell of the 200th dilution of coeculus!

Hahnemann states that "if a dyspeptic, with eructations, depression, cold feet, &c., smell only once a globule of pulsatilla of a high dilution, the derangement of his health in general, and of his stomach in particular, will certainly be removed; in two hours [precisely two, we suppose] he is *quite well*." He also states that a grain of the quintillionth dilution of gold, "put into a small clean phial, will restore a morbidly desponding individual, with a constant inclination to commit suicide, in less than an hour, to a peaceful state of mind, to love of life, to happiness, and horror of his contemplated act, if he perform but a *single* olfaction in the phial, or put on his tongue a quantity of this pow-

der no bigger than a grain of sand." *Of course*, he would not assert this unless he had seen it often done, "in less than an hour," by both these modes of administration.

"But what in reality," asks Dr. Simpson, "is the quintillionth trituration of a grain of gold—a single olfaction of which, Hahnemann, in the preceding paragraph, declares to be capable of restoring a morbidly desponding individual to a peaceful state of mind, etc.? To reduce a single grain of gold, in accordance with Hahnemann's own rules, to the quintillionth trituration, a mass of sugar, not only higher and broader than the entire range of the Alps, or of the Andes, or of the Himalayas, but as large, at least, as FIFTY globes or worlds the size of the entire earth, would be required. Yet Hahnemann avers that one single grain of gold, distributed duly and equally through such an inconceivable mass, or series of masses, of sugar, would invest every single grain of these masses, taken and put into a small clean phial, with a power of restoring 'a morbidly desponding individual, with a constant inclination to commit suicide, in less than an hour, to a peaceful state of mind, to love of life, to happiness, and horror of his contemplated act, if he perform but a *single* olfaction in the phial.'

"It is easy to estimate the medical value or valuelessness of such a dose, given either in the way of olfaction or otherwise. It may be more difficult to estimate the *pecuniary* value of such a prescription. But perhaps most sane minds will hold, that a due appreciation of the billion-worth of such a homœopathic dose by olfaction, was formed by a patient mentioned by the editor of the *Pharmaceutical Journal*. 'We have heard (says he) of a lady who, having been subjected to this process (the administration of a homœopathic dose by olfaction) by her homœopathic doctor, passed the fee before *his* nose, and then—replaced it in her pocket.'"

Among the different vagaries of homœopathy it is asserted by some that doses of all kinds, from the common doses of "regular medicine" up to the higher attenuations of Hahnemann are required, according to the various susceptibilities of different patients. This is given as an apology for the use of ordinary doses, which is getting to be now very common among homœopaths. But no one but a homœopath can see how there can be such a wide difference of susceptibility, that one patient must have a good round dose, such as vulgar "allopaths" give, while another is sensibly affected by the 30th, or the 2,000th dilution, or even a simple sniff from a phial containing a solitary globule from which a thousand effectual sniffs had been already taken. And none but a homœopath can see how this dogma can be shown to be consistent with that other dogma, so commonly received, that attenuation communicates a power to medicine which enables it to act readily on disease in all grades of susceptibility. We know that the disciples of Hahnemann can see a great deal more than common folks can, and so we suppose that they can see through these difficulties, though they are certainly puzzling to us. It is too strong meat for such babes as we are.

There is a great deal of dishonest use of ordinary remedies—that is, cures are attributed to homœopathic doses when they are secretly effected by ordinary doses. This is easily done with those remedies which occupy but little space, such as morphia, strychnia, arsenic, antimony, calomel, &c. The facts which occasionally leak out, constrain us to say, that we believe the homœopathic practitioners who are not guilty of this base fraud, are comparatively few in number.

Dr. Simpson cites many cases of this fact. The case of the Duke di Cannizzaro, who died some years ago, from a fraud of this kind, is of the most glaring character. He was taking what he supposed were infinitesimal globules, but they in fact contained each a large dose of strychnia. He thoughtlessly took three of them at once, and died in two hours. As this case made con-

siderable noise at the time, a homœopathic writer replied to the attacks on the other side, that the case only proved that there was power in globules, as an overdose was so potent as to kill a man. This assumption, that there was no fraud in the construction of the globules, shows the most cool and impudent dishonesty on the part of this writer. We have known a case in this country, in which the life of the patient came near being lost from the administration of the same remedy by a prominent homœopathist in one of our cities.

A case is quoted by Dr. Simpson, from Dr. Alfred Taylor's work "On Poisons," which is so interesting that we will give it in full:—

"A lady of this metropolis consulted a homœopathic physician, who had acquired *great repute* as an advocate of the system of infinitesimal doses. He prepared and gave to her some small white powders, with explicit instructions in writing as to the mode of taking them, and the nights on which they were to be taken. She took, as I was informed, two; and on each occasion she suffered from great stupor, and all the symptoms of narcotic poisoning, followed by diarrhoea. A suspicion arose that the powders contained some very active ingredient; and three of them were sent to me for analysis. It was first ascertained that, although in appearance, and from the directions, they were intended to pass as equally divided doses of the same medicine, they differed greatly in weight. The first weighed 3.4 grains; it consisted of calomel and morphia, the latter being in the proportion of *one grain*. The second weighed 1.5 grains: it consisted entirely of *sugar of milk* (or some innocent analogous sugar), and contained no morphia, nor any mineral matter. The third weighed 2 grains; it was composed of calomel and morphia, the latter forming about one-fourth the weight, or half a grain. The cause of the alarming symptoms was at once explained. It will be perceived, from the analysis, that the powders differed from each other in weight by more than one-half; and that the first contained *a dose of morphia which might have proved FATAL, had it been taken according to the written order*; while the second was an innocent powder, of which a person might have swallowed an ounce with impunity, and yet it was less than half the weight of the really poisonous powder. The third contained a full dose of morphia. The quantity of morphia which the patient took cannot be conjectured, as the doses of morphia in the remaining powders followed no regular rule; but it appears to have been sufficient to destroy her confidence forever in infinitesimal doses! This case, while it shows in an unexpected way the gross deception practised on the public, and the risk of life which must be incurred by such a reckless mode of prescribing, affords a hint of some value to the medical jurist. Let us imagine that the patient had taken the powder containing the grain of morphia, and had died from its effects, and that only the second of the powders, with the written directions, had been forwarded to a chemist for analysis; this would have been found to be sugar of milk, a substance which could be productive of no mischief. Had a charge of manslaughter even arisen, there would have been an admirable ground of defence in the allegation, that the unfortunate deceased had died of apoplexy; for it would have been argued, she could have taken nothing but sugar of milk, with perhaps a harmless decillionth dose of some homœopathic medicine! The prescriber, under these circumstances, would probably have been triumphantly acquitted."

In truth, the strict principles of Hahnemannism are getting to be not only secretly but often openly given up by those who proclaim themselves homœopathists. Dr. Cormack remarks that, "so ill disguised of late has been the want of accordance between their principles and their practice, that homœopathy has become in England nothing more than a conventional appellation for a very clever quack system." "A good many patients," he says, "have come to me from homœopathic doctors; and I have thus discovered that even the commonest and the coarsest of the "ordinary" means of cure are habitually used by them. Castor-oil and aloes are advised in the ordinary doses; camphor is given in very large doses in the same circumstances in which I would administer it;

croton oil is used as a counter-irritant; cod-liver oil is relied on in some forms of phthisis; and in several cases of disease I have actually found that, with the globules, hydropathy and mesmerism were had recourse to. There is nothing here stated but what I can prove to be true."

Dr. Simpson remarks that on this subject—

"To avoid using, in appropriate cases, the ordinary forms of medicinal sudorifics, aperients, emetics, etc., in their ordinary doses, some practitioners of homœopathy have recourse to every kind of possible means, in order to produce these actions and effects by other than medicinal measures; such as steaming and poulticing their patients in bed, and giving abundance of fluids to produce diaphoresis; throwing large enemata into the bowels; tickling the fauces to induce vomiting, etc. The same class of practitioners, and other homœopaths, occasionally also, and more especially of late years, affect little or no scruple in using, in acute and other dangerous cases, so-called allopathic drugs in their common doses. But then they employ them with a protest, and under the imposing name of 'auxiliaries.' In other words, when their patients require no very active treatment, or no treatment at all, the infinitesimal globules are gravely and assiduously employed, with proper regimen and diet; but when a case, or a period in a case, comes to present actual danger, from the evident omission of medicinal treatment, an allopathic purgative or other appropriate allopathic medicine is employed under the term of an 'auxiliary.' In all these cases—according, at least, to the creed of such practitioners and their patients—it is the infinitesimal drop or globule that actually *cures* the disease; while the allopathic drug is only (in their language at least), a palliative or an 'auxiliary' to the homœopathy. It is an auxiliary, however, in most such cases, exactly in the sense in which it was used by the braggart drum-boy, when he vaunted that *he* himself had defeated the French army at Waterloo—though he allowed at the same time that for this purpose he had incidentally used the English cannon, cavalry, and troops, as his 'auxiliaries' in the work."

These and other facts clearly show that homœopathy, like its coarse and despised sister, Thompsonism, is losing gradually its exclusive character, and in a little time it will be so mixed up with other delusions, and will take to itself so many measures and practices from other sources, that it will hardly exist in name. This merging process, we remark in passing, may be seen in every system or mode, whether it be promulgated in or out of the profession.

This degeneration of homœopathy was a sore thing to Hahnemann, especially the conjoining with it of the old practice, which he so bitterly denounced as "founded mainly on conjecture and false deductions, mixed up with falsehood and fraud," and as employing "medicines capable of producing, God knows what, morbid state." He deplores, therefore, in mournful strain, the folly of those who make such an unhallowed mixture of the *sole* cure with so-called "auxiliaries," and says, "My true, conscientious followers, the pure homœopaths, with their successful, almost never-failing treatment, might teach these persons better." Alas! if he lived at the present day, where would he find "true, conscientious followers, *pure* homœopaths?"

The intellectual and moral tendencies of Hahnemannism furnish a curious chapter of its history. We know of nothing which shows so strikingly the ridiculous lengths to which human error can go. We will not detain the reader with any extended view of the grotesque and fantastical follies of Hahnemann and his followers. We will only give a specimen or two.

The first, we will give in Dr. Simpson's own words:—

"During the past year, a sermon was preached in London by a clergyman of the Church of England, the Rev. Thomas R. Everest, Rector of Wickwar, Gloucestershire, in aid of the Hahnemann Hospital; and has been subsequently published. The sermon is replete with Hahnemannic theology, as well as

Hahnemannic medicine. The reverend author, who boasts of ‘some years of intimacy’ with Hahnemann, conceives it was not likely that ‘the sacred pages of the word of God should be *quite silent* on the subject’ of the discoveries which his friend imagined he had made some nineteen centuries afterwards. And accordingly, he finds they are not “silent.” One of Hahnemann’s supposed highest and greatest generalizations in pathology was, the dogma or doctrine that about seven-eighths of all the chronic diseases of the men and women of this and other ages were the result of the unobserved and unknown presence of *Psora*, or (to use its plain English synonym) itch, and were to be cured by the remedies capable of curing itch. But, argues the Rev. Rector of Wickwar, our Saviour actually meant the cure of itch (that fertile source of human disease and suffering), when he issued ‘the solemn command to his disciples,’ ‘*cleanse the lepers*’ (Matt. x. 7, 8), the leprosy of the New Testament and the *psora* or itch of Hahnemann being, according to Mr. Everest’s own grand discovery, quite identical.

“‘Irreligion (maintains Mr. Everest) is the daughter of internal disorder,’ or disease; but ‘the old system’ of medicine did not properly remove disordered action, and hence ‘was (to use his own words) of no use or value as an aid to conversion;’ whilst he conceives that by appropriate homœopathic treatment, clergymen may expect to obtain great assistance in their spiritual work among their flocks. If the psoric taint were completely eradicated, the consequence, he maintains, would be, that ‘the holy and saving truths of the gospel then will be admitted into the heart, and *never fail*, then, to influence the life.’ Without, in short, stating it in as many words, Mr. Everest—amidst much characteristic verbiage and declamation—conveys to the minds of his readers the idea that sin, or at least man’s persistence in sin, and repulsion of gospel truth, is the result of the innate *physical* deformity or disorder of the human body, rather than the result of the innate *moral* deformity and wickedness of the human heart, or of both combined; but farther, this physical disorder—consisting, as it does, merely of *psora* or itch and its consequences—is removable by appropriate medical anti-psoric treatment; and he believes that the reception of divine truth for conviction and conversion may, and should, be artificially promoted by globulizing homœopathically, children and others, not ‘*when* people are sick, but *before that*,’ for thus (again to use his own words) by a ‘continuous [homœopathic] treatment, begun in childhood, we may hope to anticipate disorders, to restore harmony, to combat the internal *psoric* tendencies, and to procure a patient hearing and kindly reception of spiritual ministrations.’ ‘When the old system (of physic) ‘shall have quite vanished from the earth, and the new one (homœopathic) shall be established, *then, for the first time*, will the gospel of the kingdom of grace be preached as Jesus ordered it to be preached, and received as God intended it to be received.’”

So, then, according to Mr. Everest, the great obstacle to the success of the gospel lies in the fact, that people are not duly prepared for the reception of it by the use of anti-itch globules. Let all the world go to swallowing these, and the world’s conversion will soon be accomplished.

Now this Mr. Everest, a clergyman of the establishment, is a great man among the homœopaths.

“The day after this sermon was preached,” says Dr. Simpson, “the managers and friends of the Hahnemann Hospital, and some of the principal homœopaths of London, dined together, under the presidency of Lord Grosvenor. And at this dinner, Mr. Everest’s sermon was publicly declared to be a ‘giant addition to the homœopathic literature of this country. (Cheers.)’ A few days afterwards, the editor of the *Homœopathic Times*, in a long and laudatory review of Mr. Everest’s sermon, observes: ‘His admirable discourse in respect of logic was faultless; sometimes grave in censure, sometimes severe in Christian simplicity, sometimes thrilling in pathos. In short, it was a great achievement. The discourse must, of course, be forthwith published; and we trust it will be distributed by tens of thousands.’”

Dr. Mure, who is styled in the *British Journal of Homœopathy*, the "Apostle of Homœopathy," it seems has discovered the true remedy for psora or itch, so that Mr. Everest may expect the speedy conversion of the world, that is, if people will be willing to take the remedy, which may be doubtful unless the nature of it be kept secret from them. The remedy is the *pediculus capitis*, or the human louse; and Dr. Mure says that he announces the discovery with "a feeling of inward satisfaction." He found that doses of louse-tea were capable of creating 283 different symptoms in the stomach, head, chest, bowels, skin, &c. Our lady homœopathists, who have such delicate nerves and stomachs, will bear in mind that of course the louse-tea is subjected to the usual dilution, and therefore they need not be startled. According to the process as detailed by Hahnemann, one little louse would suffice for all the inhabitants of the earth in all time, to cure them of the itch, and therefore, according to Mr. Everest, to secure their conversion.

Dr. Simpson states that Dr. Hering, one of the most noted of American homœopathists, recommends "bugs in the 30th dilution," for curing inflammation arising from the bites of bugs.

One more extract, and we are done with the follies of homœopathy:—

"The homœopathic list of drugs includes a number of medicines that possess (at least according to the homœopathists) the power of producing, and hence, on the principle '*similia similibus curantur*,' of curing various moral and religious symptoms and states. Thus, according to Jahr (vide *Manual of Homœopathic Medicine*, vol. i.), the great anti-psoric remedy, SULPHUR (p. 563), produces in a healthy person, and hence will cure in a diseased, the feeling of 'Despair of Eternal Salvation;' Lycopodium (p. 337) possesses the same property; a dose of PULSATILLA (p. 468) produces 'Despair of Eternal Happiness, with continual praying,' 'hymns, and Devout Aspect;' LACHESIS (p. 310) produces, and hence should cure, 'Absence of Religious Feeling, and fear of approaching death;' a small dose of GOLD, taken internally, produces 'Excessive Scruples of Conscience,' and 'Despair of One's self and others;' VERATRUM produces 'extraordinary taciturnity, with Oaths on the slightest provocation,' and 'Raving about Religious Matters;' ACONITE (p. 3) produces 'an irresistible desire to Blaspheme and Swear,' and 'a sensation as if the mind was separated from the body;' ANACARDIUM (p. 33) produces the same swearing symptoms, and 'absence of all Moral and Religious feelings' (vol. ii. p. 155); a dose of common COLOCYNTH (an ingredient in an allopathic pill which most people have repeatedly swallowed) produces (says Jahr, p. 189) 'want of all Religious Feeling,' &c. &c. &c."

(P. 30, note.)

We must be indulged in one more extract, which has just met our eye, before we leave this subject. It is an extract containing some specimens of provings from a book published in London, by the " HAHNEMANN PUBLISHING SOCIETY," on the symptoms derived from the "Disposition, Mind, and Head":—

"'Delusion that he is flying' (produced by CAMPION). 'Delusion that he is riding an ox' (produced by BELLADONNA). 'Delusion that he is a hunter' (produced by VERATRUM). 'Delusion that he is a commanding officer' (effect of a dose of COPPER). 'Delusion that he gives the word of command' (effect of BELLADONNA). 'Delusion that he has a large business' (effect of Phosphorus). 'Delusion that he possesses fine clothes' (effect of SULPHUR). 'Delusion that he is a goose' (effect of CONIUM). 'Delusion that he is a child' (effect of CICUTA). 'Delusion that he has old chairs to mend' (effect of COPPER). 'Delusion that he has greens for sale' (effect of COPPER). 'Delusion that he is driving sheep' (symptom of ACONITE). 'Delusion that his head is larger' (symptom of ZINC). 'Delusion that his head is transparent, and that his nose is transparent' (effects of BELLADONNA). 'Delusion that his stomach is devoured' (effect of SABADILLA). 'Delusion that his legs are cut off' (effect of BARYTA). 'Delusion that his fingers

and toes are cut off' (symptom of MUSK). 'Delusion that his feet are in his brain' (effect of AMPHISBENA). 'Delusion that he is killed, roasted, and being eaten' (a symptom of STRAMONIUM). 'Delusion that he is about to be married' (symptom of HENBANE). 'Delusion that he is pursued by evil spirits, and that a dog is biting him' (effect of STRAMONIUM). 'Delusion that thieves are in the house' (symptom of ARSENIC). 'Delusion that men are swine' (a symptom of HENBANE). 'Imaginary vision of rabbits' (effect of STRAMONIUM). 'Pretending to crack nuts' (symptom of HENBANE). 'Pretending to count money' (symptom of BELLADONNA). 'Pretending to drive away peacocks' (a symptom of HYOSCYAMUS). 'Eats his shoes' (an effect of VERATRUM). 'Tries to climb up the stove' (effect of HENBANE). 'Dancing in the churchyard' (a symptom of STRAMONIUM). 'Inclination to pull people's noses' (a symptom produced by MERCURY), etc. etc. etc." (Pp. 76, 77, note.)

It is often said by the patrons of homœopathy, in reply to statements in regard to the follies and fallacies of this system, "I care not how ridiculous you can make homœopathy appear, if it cures, it is all that I want." And it seems to be supposed by a large portion of the community that physicians are less disposed to meet it on this ground than on any other. It is taken for granted, almost, that physicians reject homœopathy merely because it does not tally with the doctrines and notions which they have been accustomed to maintain, and by which they have been governed in their practice, and not at all because they have any really practical evidences against it. But this is not so. Let the homœopathist show us that infinitesimals do cure, and we will adopt them at once. The bare fact that many patients get well while taking them is a different thing, for this happens with all sorts of measures and remedies, even the worst, simply because other agencies besides remedies have an influence in effecting the recovery, and chiefly the *vis medicatrix naturæ*.

It is from a disregard of the necessary distinction just referred to that the reputation for success in curing disease has been so easily achieved by every species of quackery in all time. On this subject, Dr. Simpson remarks:—

"‘Pure experience (it is averred and argued by Hahnemann) is the only, the infallible oracle of medicine,’ and the ‘idle declamations (of opponents) must cease before the dicta of infallible *experience*.’ In this strain, in former times, Bishop Berkeley strenuously, and apparently soundly, argued regarding the universal curative effect of Tar-water; so argued Dr. Solomon, regarding his Balm of Gilead; Mr. Perkins, regarding his Metallic Tractors; Dr. Morrison regarding his Pills; Mr. Lee regarding the effects of the internal and external use of Brandy and Salt, &c. &c. In the present day, we have exactly the same proof of ‘infallible *experience*’ everywhere as earnestly and anxiously repeated—by Dr. Dickson, regarding the results of his Chronothermal treatment; by Mr. Coffin, regarding his courses of Lobelia, &c.; by Ling, regarding the cure of all diseases by rubbing and movements; by Priessnitz, regarding the cure of all affections by the internal and external use of cold water; by Luz, in relation to the treatment of all diseases upon the Isopathic principle, ‘*aequalia aequalibus curantur*’—the same is cured by the same; by Hahnemann, in relation to the treatment of all diseases upon the homœopathic principle of ‘*similia similibus curantur*’—like is cured by like. The promulgators, pupils, patrons, and patients of each of these diverse universal systems of cure, are, like Hahnemann and his followers, all equally ready and equally entitled to appeal to the results of ‘pure EXPERIENCE as the only, the infallible oracle’ and criterion of the particular medical doctrine, and exclusive mode of cure, which, for the time being, they severally and zealously happen to favour and follow.

"To decide amidst so many very strong and yet very opposite asseverations may not always be an easy task for trusting and credulous minds, and particularly with those who are unacquainted with the nature of medical evidence. Indeed, with the non-medical public the difficulty of distinguishing what is a

cure by nature alone, and what is a cure by nature assisted or controlled by art, makes up the sum of the difficulty of distinguishing between true and spurious medical treatment. And in solving this problem, it is far too frequently forgotten that men labouring under disease, even the most acute, and consequently much more so when suffering under slighter ailments, do not as a general rule die, even when totally and entirely left without any medicinal treatment whatever. When reasoning on the efficacy of different medicines and different modes of cure, the mind is constantly liable to fall into the greatest errors, by neglecting this leading truth. For when a man, in a state of disease, takes, for the purpose of curing that disease, a millionth or a decillionth of a grain of oyster-shell, or sulphur, or other homœopathic drug, he comes—not very unnaturally, but very illogically—to attribute his cure to the infinitesimal dose of oyster-shell or sulphur, from being unaware that the disease, if left to itself, does very often spontaneously get well, and was virtually left entirely to itself when he took his Hahnemannic dose of oyster-shell or sulphur. While the homœopathic patient anxiously attributes his cure to the infinitesimal dose which he has swallowed, the cure is in reality effected by the natural sanative powers of the constitution (the old *vis medicatrix naturæ*) ; or by nature aided, not by medicine, but by Medical Faith; or assisted by proper Regimen and strict Diet; the last, great, and potent auxiliary means, of which all homœopathists very properly and powerfully avail themselves." (Pp. 79-82.)

But it is claimed that comparisons instituted between homœopathy and other modes of practice show largely in favour of homœopathy. We will not detain the reader with a view of the fallacies which often attend such general and loose comparisons as are made by individual practitioners, or by non-professional observers, in the limited range of their observation; but we will come directly to what has been asserted to be the stronghold of homœopathy, the results of statistics. And we shall not dwell upon the statistics of *private* practice, to which appeals have been so boldly made, and which have so often been proved not only to be collated on loose and false principles, but to be marked by dishonesty, and sometimes absolute falsehood. Our intention is to deal only with the *hospital* statistics of homœopathy, about which so much noise has been made. On this subject Dr. Simpson has a long chapter, and the most valuable and best constructed in the whole book. We commend it to our readers, not only as exposing the practical nothingness of homœopathy, but as developing principles which it would be well to apply more strictly to our own statistics. We shall give a condensed view of the most important parts of this chapter.

The most noted of homœopathic hospitals is the Homœopathic Hospital of the Sisters of Charity, under the care of Dr. Fleischmann, of Vienna. He has published returns of 6,501 cases treated during eight years, viz. from 1835 to 1843. Of these, 1 out of every 16 died; that is, the mortality was 6.4 per cent. This is claimed to be a small percentage of mortality. It is, when compared with some hospitals, but not so when compared with others. The ordinary mortality of large and crowded hospitals in such cities as London and Edinburgh varies from 5 to 12 per cent. The average mortality of the largest hospitals in London, during four years, 1846 to 1850, was 8.4 per cent. The average mortality of fourteen large English hospitals was found, by Mr. Thomson, to be 7.7 per cent. That of the Dundee Hospital is 5.1 per cent.; that of Aberdeen 4.6 per cent.; that of Inverness 4.3 per cent.; and of thirty provincial hospitals, taken together, it was found, by Mr. Thomson, to be 4.4 per cent. The average mortality of the English military hospitals is only 2 per cent.

Some of these hospitals, it will be seen, have a higher mortality than Fleischmann's, and some less—some of them very much less. The mortality is varied by circumstances; it depends very much on the character of the cases

which are admitted, as will be seen as we proceed. We will only remark here that a hospital situated in the midst of a large city, crowded, taking in all it can, having a large number of persons injured by casualties, and rejecting, from its crowded state, applications from mild cases, must have a large average mortality, while in a hospital with all these circumstances reversed the mortality will of course be small.

Now, it can be shown that, if there be any virtue in homœopathy, the mortality of Fleischmann's hospital should have been much lighter than it was. The circumstances all favoured the existence of a small percentage of mortality. His hospital is not in the midst of a city, but some distance out of it; it is not crowded; it is spacious, and is superior in all its accommodations; and then the very object for which it was instituted, and its relations to the community, secure for it an abundance of mild and curable cases of disease. On this matter, Dr. Gairdner, as quoted by Dr. S., remarks:—

"If I were to give a formula for the arrangement of a hospital designed to exhibit a low rate of mortality, it would be this: Choose your site well; let it be not *in*, but *near* a large city, having already hospital accommodation on a prodigious scale, well known to the poorest classes of the community, and adapted to their wants; let the distance from the centre be such (say three miles) as will keep back the extremely abject and the dangerously diseased, either through want of knowledge of your institution, or want of power to reach it; let the arrangements be so perfect as to contrast favourably with the older hospitals, and to attract the valetudinarians, whose illnesses and means permit them to avail themselves of its superior accommodation; and, finally, let some special practice be pursued, in order to enlist the sympathies of rich or idle *dilettanti*, who will know how to fill your wards with the sort of cases suitable for your experiment. THIS IS PRECISELY THE PICTURE OF THE VIENNA HOMŒOPATHIC HOSPITAL, which has the amazing effrontery to call upon us to compare its peddling *experiments* with the great labours of pure beneficence, of which general hospitals of this and other countries furnish examples." (P. 92, note.)

Dr. Simpson has instituted a comparison between Fleischmann's hospital and the Edinburgh hospital, which in *two* years admitted about the same number of patients as Fleischmann's did in *eight*.

Mr. Thomson, in examining various official reports of hospitals, arrives at this conclusion—that the mortality depends to a great extent upon the amount of cases admitted of the following diseases: 1. Pulmonary consumption; 2. Organic disease of the heart; 3. Aneurism of the large vessels; 4. Organic disease of the kidneys; 5. Organic diseases of the stomach. The mortality is apt to be the greatest, he found, in the hospital which has the largest number of cases of these diseases.

Now, of these five forms of disease there were only 120 cases admitted into Fleischmann's hospital, while 548 (nearly five times as many) were admitted into the Edinburgh hospital.

If we extend our view, and take in more of those forms of disease that are apt to prove fatal, we shall find the difference between the two hospitals still greater. The difference may be seen in the following table:—

Diseases.	No. of cases in Fleischmann's hospital.	No. of cases in Edinburgh hospital.
Consumption	98	276
Palsies	5	103
Organic disease of the heart	15	159
Organic disease of the liver	1	33
Bright's disease of the kidney	0	82
Diabetes mellitus	0	17
Internal aneurisms	1	18
Caries and necrosis	5	57
Malignant (cancerous) tumours	0	55
Other tumours	0	36
	—	—
	125	836

That is, there were nearly seven times as many cases of these bad forms of disease in the Edinburgh hospital as in Fleischmann's hospital, with nearly the same whole number of cases in both. Besides, the difference between the two hospitals in regard to the number of cases of severe external injuries is very great. In Fleischmann's hospital there were only 52 cases of injury. Of these, 34 were cases of slight wounds, and all these recovered; the remaining 18 were cases of burns, of which two died. In the Edinburgh hospital there were 641 cases of injury, and 150 of them were subjects of the "principal operations," of which 32 died.

Another point of difference is in regard to putting the *moribund* into the statistics. These moribund cases "are admitted (says Dr. Routh) in our allopathic returns, even though a patient be admitted but one hour before death. The homœopaths pursue a different course. This very clearly affects materially the reported percentage of mortality."

Besides all these circumstances, the amount of mortality may be made much less by continuing to exclude incurable cases, while the admission of cases that are quite sure to recover may be courted. This is easily done; and it would be very apt to be done, if it be quite necessary to make out a favourable report. In Fleischmann's case this necessity existed; for, as Dr. Simpson says, "the very existence of his hospital depended for a time (and perhaps does so still) upon his mortality tables showing an amount of mortality which shall be considered sufficiently favourable by the Austrian government." At any rate, the facts show a very large proportion of mild cases in that hospital; while, as Dr. Routh, who visited it, says, "the serious cases are few and far between." To return to a comparison between this and the Edinburgh hospital. "While among the 6,000 Edinburgh hospital cases we have 34 cases of that non-fatal disease, inflamed sore throat, or *cynanche tonsillaris*, among the 6,000 Vienna homœopathic cases there are no less than 301 cases of this affection. In the Edinburgh returns there are 2 cases, and in the Vienna returns 110 cases of chicken-pox; in Edinburgh 1 case of herpes or tetter, in Vienna 20 cases; 48 cases of chlorosis and amenorrhœa at Edinburgh, and 90 at Vienna; 37 cases of headache at Edinburgh, 61 at Vienna; 52 cases of influenza at Vienna, and none at Edinburgh; and so on." Dr. Balfom, in speaking of the character of the cases which he saw from day to day in Fleischmann's hospital, during his visit there, says: "There are, I may say, hundreds of trifling cases admitted here which would not have been admitted into any hospital in England."

That there was contrivance, cunning, even dishonesty, in the management

of the admissions and exclusions on the part of Fleischmann, is very evident. In no other way can we account, on the one hand, for the admission of so many cases that do not ordinarily find their way into a hospital, and, on the other, for the exclusion, to so great an extent, of cases of disease apt to prove fatal, as consumption, disease of the heart, &c. At least, it is proper to infer from the bare result, if we had no direct proofs, that the one class of cases were encouraged to come, while the other were discouraged. But we have in fact some direct proofs of unfair management on this point, which, however, we will not stop to detail. Of course, the cases in which detection of the fraud (for such it is) is possible are few; but we have a right to presume that there were many more, and, of course, the rule, *falsus in uno, falsus in omnibus*, applies here.

Under all the favouring circumstances which we have noticed, it is obvious that Dr. Fleischmann could have made out a better case for himself, in his percentage of mortality, if there were any real efficacy in homœopathy. If any hospital under the control of "regular medicine" could be managed under the same favouring circumstances, and with the same manœuvring in the admission, and exclusion, and discharge of cases, vastly better returns could be made out than those which Fleischmann has so vauntingly spread before the world. Our hospitals actually do much better than his did, even with much less favourable circumstances, as, for example, the provincial hospitals, whose average mortality is, as we have before seen, 4.4 per cent., while that of Fleischmann's is 6.4 per cent., about one-third more.

Dr. Fleischmann, it seems, was very anxious to make out a good story of success in regard to his treatment of *pneumonia*, and Dr. Simpson furnishes very convincing proof that Fleischmann has, in order to accomplish this, enumerated more cases of pneumonia than he actually had. He has altogether too large a proportion of cases of this disease in his returns to make his statements true. In the general hospital in Vienna, the cases of pneumonia average about 2 per cent. of all the cases, while those of bronchitis average about 7 per cent. This shows us the relative average proportion of cases of these two diseases which would be apt to come into a hospital there. Now, in Fleischmann's hospital the cases of pneumonia average $4\frac{1}{2}$ per cent. (more than twice as many as in the general hospital), while the cases of bronchitis do not reach 1 per cent. The explanation clearly is, that Fleischmann has called pneumonia many of his cases of bronchitis, in order to get the credit of success in treating this latter disease. This is the only rational explanation, and we adopt it with the less hesitation from his palpable dishonesty in other matters.

This giving wrong names to diseases is a very common mode among homœopathists of acquiring credit for curing grave disease. On this point, Dr. Simpson remarks that this cure, not to say fraud, appears in—

"the alleged great number of cases of acute *Inflammation* in the head, chest, and abdomen, seen in the returns of homœopathic as compared with allopathic hospitals. Every physician knows how easily an attack of neuralgic, spasmodic, or rheumatic pain, in any of these parts, may be mistaken for and set down as an attack of inflammation—as simple pleurodynia for actual pleurisy or pneumonia, headache and cerebral congestion for inflammation of the brain or its membranes, colic for enteritis or peritonitis, etc.; or how readily a milder disease may be returned for a more severe—as diarrhoea for dysentery, cholera for cholera, spurious or spasmodic croup for true inflammatory croup, bronchitis for pneumonia, etc. etc." (Pp. 92, 93.)

We will cite here a single example of Fleischmann's dishonesty, and it is
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in relation to the disease of which we have just spoken—pneumonia. An English physician, Dr. Balfour, attended Dr. Fleischmann's hospital practice through the months of May, June, and July, 1846, taking notes of all interesting cases. He published, among others, the particulars of 19 cases of pneumonia, of which 3 died—that is, 1 in 6, or about 15 per cent. But in Fleischmann's published returns for the whole of that year, though he gives 64 cases of pneumonia, he returns but 2 deaths, one less for the whole twelve months than Dr. Balfour saw die in that hospital, of this disease, duly labelled over their heads, during the three months of May, June, and July. If Fleischmann's returns are correct, the mortality was 1 in 32, quite different for the whole year from what Dr. Balfour makes it out for three months, which was 1 in 6.

There are many other points brought out by Dr. Simpson, in regard to this hospital experience, which it would be profitable to notice, if there were space and time. We will only remark, in passing, that the developments which have been made in this experience show decidedly that it is poor policy for homœopaths to open hospitals, and that they had better be content to deceive the public with the statistics of their private practice, as they will thus be less troubled with "allopathic" scrutiny. But if they *will* have hospitals, and publish their statistics, we advise them to avoid *particulars* altogether, and publish only the gross results.

The practical proofs of the absolute inefficacy, the nothingness of homœopathy, are various and abundant. It is not our intention to consider them at length, nor even to give them a passing notice. We cannot forbear, however, to mention some glaring practical evidence of this sort in the case of Dr. Simpson's colleague, Dr. Henderson. The facts were related by Dr. S. at a meeting of the Medico-Chirurgical Society of Edinburgh. We give the statement as reported in Dr. Simpson's book:—

"Some eight or ten years ago, an old schoolmate of Dr. Simpson having begun business as a homœopathic druggist in Liverpool, kindly sent Dr. S. a present of a small box of homœopathic medicines, and a very beautiful painted box it was. During the time it was in Dr. S.'s possession, he put it only to one use, viz. he gave it as an occasional plaything to his eldest son, who was then a child. The boy, revelling in his permitted amount of mischief, used in his sport to uncork the small bottles, empty their globules into a heap, and then refill the bottles from the general mass. Of course, this had speedily the effect of altering and disarranging the contents of the entire lilliputian drug shop; the globules pertaining to the different bottles were more or less thoroughly mixed together; and sometimes, when the child was tired of his occupation, others at last refilled the bottles from the general heap. A professional brother happening to call at Dr. S.'s house one day when Dr. S. was absent from home, saw the box, and put it in his pocket. Many weeks afterwards, the new proprietor of the box met Dr. S., and told him that he had been trying to practise homœopathically, at which Dr. S. expressed his regret; and he added that he had seen some wonderful effects and cures from using the drugs contained in Dr. S.'s own former homœopathic box! Wrongly, perhaps, as Dr. S. now thinks, he did not at the time tell this physician that the globules of the bottles which he had been using were elaborately commixed; but the whole struck him as so good a joke at the moment, that he thought he would reserve it to bring it out upon his friend on some future and more ripe occasion, for the purpose of laughing him out of his homœopathic delusion. But, unfortunately, matters hastened rapidly on; the physician became more and more a homœopathist; and then it became too serious a matter to joke about, when he actually published a list of supposed homœopathic cures." (Pp. 15, 16.)

This physician, as we learn from the same account, published in another

quarter, was Prof. Henderson. The facts need no comments. We will, however, relate a somewhat similar case which came to our knowledge. One of the lady apostles of homœopathy hearing of the sickness of a neighbour, sent in her box and pamphlet, with an urgent request that the globules might be administered in the case. A young man in the family, without letting any one know it, emptied the first phial, then poured the globules in the second into it, and so on through the whole, filling the last phial with the contents of the first. The labels remained as before. The next day the box was sent home, and the lady continued to use the medicines according to her pamphlet, with just the same success as before, distinguishing with homœopathic exactness the effects of each medicine. It is now two years since this unknown change was made in her box, and she has all this time had no suspicion that there was anything out of the way in it.

Such cases show why it is that homœopathists are unwilling to put their system to tests like that which was proposed to the most prominent homœopathist in Paris. The proposition was this: that he should himself select ten remedies and prepare them, and that one of these, chosen by lot, should be administered to him; and then that he should afterwards, at such time as pleased him, come forward and state which of the ten substances he had taken. The proposition was declined.

There have been some attempts made to establish the efficacy of infinitesimals by physical proofs, and to this subject Dr. Simpson devotes a chapter. The microscope has been brought into requisition, and some *thought* that they saw particles of the substance used (copper, for example), even in the 200th dilution, but they have since *thought* that they were mistaken.

At length it was announced that a Mr. Rutter, manager of the gas-works in Brighton, England, had invented an instrument, called the *magnetoscope*, by which he could demonstrate the action of the infinitesimals upon the system. Dr. Quin, the principal homœopathic practitioner in England, said of it:—

“‘ Science [homœopathic science] has made a gigantic stride by the philosophical instrument and important discovery of that gentleman; and homœopathic practitioners especially are greatly indebted to him for having proved the physical action of our remedies in infinitesimal quantities upon the human body; and you will join with me heartily in doing honour to him for the great impetus he will be the means of giving to our cause. The only reason for sorrow is, that our revered master, Hahnemann, is not alive to witness this triumphant PROOF of his own great discoveries.’’ (P. 120.)

Then again:—

“‘ The great barrier which has prevented the majority of the members of the medical profession from inquiring into homœopathy, has been their repugnance to entertain, for a moment, the idea that the exiguous doses of medicine administered by homœopathic practitioners can have any effect whatever upon disease. This barrier is now broken down by the brilliant discovery and beautiful invention of Mr. Rutter.’’ (P. 120.)

Dr. King, a physician of Brighton, said, in a letter to Mr. Rutter:—

“‘ When I first saw your machine prove the polarity of a decillionth of a grain of silex, and when I first saw it respond to the billionth of a grain of quinia, I was seized with the same kind of awe as when I first studied the resolution of the nebulae, and as when I first saw the globules of blood and the filaments of the nerves through the microscope.’’ (P. 121.)

The homœopathists, as a body, in England, hailed this discovery with similar enthusiasm.

Dr. Madden, a very prominent homœopathist, and obviously more honest

than some of his brethren, after trying many experiments, laid down these three propositions :—

“ I. ‘ I can now render evident to the senses the action of our remedies, even at the *highest potencies*. ’ ”

“ II. ‘ I can demonstrate physically the truth of the homœopathic law [*similia similibus curantur*] ; and ’ ”

“ III. ‘ I can prove the action of our remedies to be, in a certain sense, totally independent of *quantity*. ’ ” (P. 124.)

But, reader, this splendid bubble has burst. Although the whole English homœopathic world ran mad with enthusiasm in regard to the results developed by numberless experiments, both in public and private, and though the President of the British Homœopathic Society but echoed the general sentiment when he said : “ Try the instrument as you will, it never errs ; *it has all the certainty of a mathematical equation* ; ” yet it has now, only two years, we believe, from the commencement of the great discovery, lost all its glory, and but comparatively few, with the *gaseous* Mr. Rutter, now excite their “ motiferous fluids” with this instrument.

We have thus noticed but a small part of the book of Professor Simpson. We would commend it to any of our readers who wish to see the most full exposure of homœopathy that has yet appeared, and who desire to arm themselves with facts to meet the attacks of the patrons of this delusion, to which they are so often subjected in their daily intercourse.

W. H.

BIBLIOGRAPHICAL NOTICES.

ART. XI.—*A Treatise on the Diseases of the Eye.* By W. LAWRENCE, F. R. S., Surgeon Extraordinary to the Queen; Surgeon to St. Bartholomew's Hospital, and Lecturer on Surgery at that Hospital; Surgeon to Bethlem and Bridewell Hospitals; and late Surgeon to the London Ophthalmic Infirmary. A New Edition. Edited, with numerous Additions, and two hundred and forty-three Illustrations, by ISAAC HAYS, M. D., Surgeon to Wills Hospital; Fellow of the Philadelphia College of Physicians; Member of the American Medical Association; of the American Philosophical Society; of the Academy of Natural Sciences of Philadelphia, etc. etc. etc. Philadelphia: Blanchard & Lea, 1854. 1 vol. octavo, pp. 948.

"LAWRENCE on the Eye" is so well known in this country, that, in announcing a new edition, it is unnecessary to enter into any details respecting its contents or its general merits.

The call for another American edition is the best evidence of its being appreciated by the profession. Every one feels the necessity of having a standard work on diseases of the eye in his library, and there is no work better adapted to the wants of the practitioner than that now before us.

Ophthalmic medicine is so much neglected by students when pursuing their medical studies, and, indeed, so little attention is paid to the subject by teachers of surgery, as to render it absolutely necessary that a work on this subject should be obtained at the outset of practice.

The present volume is issued with so much additional matter, and is so much improved in its appearance by numerous illustrations, that those who were familiar with the last edition will hardly recognize it.

More than one hundred pages of new matter have been incorporated, and the labours of the editor are everywhere to be seen, in the endeavour to represent fully the present state of ophthalmic science. No subject seems to have escaped attention. All the new points demonstrated in the anatomy of the eye, the new views in pathology, together with the improvements in treatment, have been introduced, so that it may now be considered the most complete treatise on the subject issued from the American press.

The relation sustained by the editor of Lawrence to this journal, forbids anything like commendation of the manner in which the task has been performed; but the position which Dr. Hays has occupied for so long a period at Wills Hospital, and his extensive experience in this specialty, must be a sufficient guarantee for the practical value of the new material.

The publishers have displayed their usual liberality in furnishing the profession a handsomely printed and elegantly illustrated volume. J. N.

ART. XII.—*On the Etiology, Pathology, and Treatment of Fibro-Bronchitis and Rheumatic Pneumonia.* By THOMAS H. BUCKLER, M. D., formerly Physician to the Baltimore Almshouse Infirmary. Philadelphia: Blanchard & Lea, 1853. 8vo. pp. 150.

"THE leading object of this volume is to point out, as clearly as possible, the distinctive characters of fibrous or rheumatic inflammation of the bronchial tubes, and at the same time to show the differential diagnosis between it and ordinary catarrh; the word rheumatic has, therefore, been affixed to the term

bronchitis, for the purpose of showing at the outset that it is intended to treat of a distinct affection, which, for want of proper anatomical accuracy as to its true seat, has been most singularly confounded with inflammation of the mucous membrane of the bronchi.

"The next object is to show that there exists a form of pneumonia which is never idiopathic, but occurs as a secondary lesion, and is always symptomatic of, and directly dependent on, pre-existing fibrous bronchitis. It is farther intended to point out the relations which the foregoing pathological conditions bear to general rheumatism and to rheumatic endocarditis, and to show that ordinary pneumonia, simple mucous catarrh, and fibrous bronchitis, with rheumatic pneumonia, often happen in the same lung as distinct, but still contemporaneous and concurrent, affections, and that where this is the case, therapeutic attention to the rheumatic element is often of vital importance to the safety of the patient."

The purpose of this essay has been stated in the author's own words, which convey more distinctly than any paraphrase of ours could do an idea of his subject and his mode of treating it. The reader will at once perceive that a new province has been opened in the region of thoracic pathology, a region which seemed incapable of presenting any object of interest left undescribed by the host of eminent writers who have followed in the steps of Laennec. But the sagacious and truthful questioner of nature, finds her treasures inexhaustible, and his ability to make them his own depends not less upon his entering the field of inquiry with an untrammelled mind than upon his knowing well the paths of previous explorers. Dr. Buckler is an accomplished physician; he has also been trained in a school of close and accurate observation, and is distinguished for a searching and analytical spirit. For such an one, it is impossible to walk in the literal footsteps of any scientific guide. He constantly strives to see farther and more distinctly than others have seen, to act as if the works of other teachers were rather finger-posts to point the way beyond their own attainments, than charts merely to make plain determined routes. It was in his own experience that Dr. B. first found a clue to guide him into a region altogether new to himself, as indeed it probably is to nearly all of his contemporaries. In 1842, his attention was strongly arrested by the case of a lady who died from an attack of acute bronchitis and pneumonia produced by cold, and whose lungs presented no lesions after death, of sufficient extent to explain the fatal termination. Subsequent experience presented him with cases of an analogous description, so far as relates to the local and general symptoms, but which came on during an attack of rheumatism that subsided as the pulmonary affection increased; and still other cases occurred in which the rheumatic and pulmonary affections alternated, each one augmenting as the other declined. These cases seemed to complete the demonstration of the dependence of the two morbid forms upon one essential cause; for not only did they present the reciprocal relation alluded to, but the pulmonary disorder which characterized them was peculiar in this respect, that its symptoms not only differed widely from those of simple idiopathic bronchitis or pneumonia, but was also amenable to remedies which control the rheumatic rather than the inflammatory element. "The symptoms most strikingly characteristic of the acute variety of rheumatic bronchitis are profuse, irregular sweats, inordinate sensibility to cold, transient flushings of the face, and either a constant or a paroxysmal and unproductive cough." The sweats in this disease are symptomatic and not critical, as they usually are in simple inflammation of the lungs. In subacute rheumatic bronchitis, the pulse and respiration are usually not more frequent than in health, nor is there pain in the chest, nor post-sternal soreness, but often, during the act of coughing, a painful sensation referred to the bronchi, and which is compared to the effect that scraping these tubes with a rough instrument might produce. Mucous catarrh is extremely limited in its duration, but rheumatic bronchitis may last for months or years. The auscultatory signs of the latter disease are entirely negative, with the exception of an occasional sibilant râle. It is eminently prone to be complicated with cardiac inflammation or with pneumonia. In rheumatic bronchitis of the acute variety, uric acid and urate of soda are found in excess in the urine; in the subacute and chronic forms, urates of soda and

lime are almost constantly found in the urine in very great excess. The author believes that as catarrh occurs sporadically, the rheumatic variety will be found in about five out of twelve cases of the disease.

"Fibro-bronchitis is often," he concludes, "without doubt, the most insidious disease under which a patient can possibly labour. It may last, in a subacute form, for days, weeks, or months, without giving rise to any greater annoyance than that which is produced by a dry cough, attended occasionally with slight pain and soreness. The individuals labouring under it feeling no indisposition, having a good appetite, and sleeping well, go about attending to their occupations as usual. With ordinary care, and an avoidance of exposure at night and during wet weather, the disease, unaided, frequently ends in recovery; but a very slight exciting cause, fatigue, over-indulgence in food and wine—particularly when these are taken at night—exposure to dampness, or some other trivial causes, often at once convert this mild affection into an acute bronchitis. On this, pneumonia frequently supervenes, giving rise to one of the most dangerous complications under which an individual can labour. But still more frequently acute bronchitis, with contemporaneous or subsequent engorgement, happens suddenly, without being announced by the cough and other antecedents which mark the subacute form of this affection."

Among the distinctive signs of rheumatic *pneumonia*, the following may be mentioned. The redness of the cheeks is generally faint, transient, and irregular, while that of the idiopathic form is usually deep, circumscribed, and constant. But if in the rheumatic variety the engorgement is extensive, the capillary congestion about the face is both deep and persistent. As this engorgement is seldom extensive in the rheumatic form of pneumonia, the respiration is affected only in the same proportion. The blood drawn in this disease is uniformly found more highly buffered than in simple inflammation of the lung, but not more so than in some severe cases of pleuro-pneumonia. In simple pneumonia there is generally no antecedent cough, but the rheumatic variety, being the consequence of a peculiar form of bronchitis, is usually preceded by the characteristic cough of this latter. Simple inflammatory pneumonia has a duration of from four to twelve, or at most twenty days, but where this affection is complicated with, or depends upon pre-existing bronchitis, the engorgement, if it does not result in death, may continue for thirty-five days, or even longer.

Such is a concise summary of the forms of disease which are described in Dr. Buckler's Essay. It will be readily apparent that none such are recognized in any of the systematic treatises on pulmonary disorders published since the methods of Avenbrugger and of Lachnec were introduced to the profession. But, as the author is careful to show, writers of a previous age had recognized the existence of the affection which, it may be said, he has himself rediscovered and first described. The disciples of the humoral school of medicine were not unacquainted with its relations to rheumatism. Tissot, Rodamel, Barthez, Stoll, Boerhaave, and others, point them out, some with more and some with less distinctness. Of later writers, Latham is the only one, according to our author, who appears to have noticed them. We may mention a still more recent one, Dr. C. Black, who (in the *Monthly Journ. of Med. Science* for June, 1853), merely alludes, in passing, to "an epithelial variety of arthritic and rheumatic inflammation of the bronchio-pulmonary mucous membrane" as always shifting in its character, and tending to "occur again and again, but for a few hours only, during the course of the specific affections in their accustomed localities."

The rediscovery and the description of these internal forms of rheumatism, constitute, in our opinion, the claim of the present essay to a very high commendation. It is not improbable that the author attaches undue importance to the theoretical disquisition which he enters into, concerning the proximate nature of the diseases he describes. He believes that the most common producing cause of rheumatism is the presence in the blood of insoluble lithic acid and lithate of soda, which are arrested in the terminal bloodvessels supplying the fibrous tissues, act there as irritants, and thus become the primary link in the chain of morbid phenomena constituting one form of rheumatism. For this form, he regards the phosphate of ammonia as incomparably the best

remedy. He farther believes that another class of rheumatic inflammations depend upon the retention in the blood of nitrogenized matter, and that for these the antidote is diaphoresis. Another form of rheumatism he believes to depend on the presence of earthy phosphates in the blood, and he teaches that citric or acetic acid is its appropriate remedy. A fourth form of the disease he believes to depend upon the presence in the blood of certain extractive matters, producing the most inveterate cases of the malady, cases which are curable by a course of vegetable and mineral tonics, cod-liver oil, change of air, &c. All of these forms, he infers, may be seated in the fibrous and cartilaginous tissues of the bronchial tubes. But he does not say how the manner in which the tubes are affected furnishes a clue to the specific form of rheumatism, under which they suffer. This, it would seem, must be inferred from an analysis of the urine, and upon its results the treatment must be based.

Another and peculiar view of the author relates to the vital mechanism, if we may so speak, of rheumatic as distinguished from ordinary pneumonia. The latter, he believes, commences with congestion in the capillary vessels of the depurative circulation, and it is only, he maintains, when these passively dilated tubes come to be irritated by the retained globules, or by the presence of some saline material, that the process of inflammation is set up by the nutritious artery of the part, the passage of the blood through pulmonary depurative vessels is impeded, and effusion of plastic lymph takes place. In contradistinction to this mode, he conceives rheumatic pneumonia to arise in this wise:—

"It is well to remember that the fibrous tissue of the bronchi is traversed solely by the minute branches of the nutritious arteries, and that, where symptomatic pneumonia happens as a consequence of fibrous bronchitis, the order in which the vascular lesions take place is precisely the reverse of their occurrence, as already pointed out, in simple uncomplicated pneumonia. Insoluble uric acid, or its compounds, phosphates, or the extractive matters found in the urine, not being eliminated from the blood, are deposited in the meshes of the fibrous tissue, exciting nervous irritation, followed by vascular lesions, exudations, transfusions, and all the general phenomena incident to rheumatic inflammation. This process having set in, a symptomatic remora of blood takes place in the depuratory capillaries belonging to the inflamed bronchi, and a congestion, leading to engorgement, reaching the first or second stage of pneumonia, and rarely going beyond it, often takes place. This form of inflammation is propagated from the fibrous tissue of the bronchi, both by contiguous and continuous sympathy.

"Where the rheumatic inflammation is propagated to the pulmonary parenchyma by contiguous sympathy, the pneumonia is apt to be limited, and the engorgement is found wrapping, to a greater or less extent, one or more of the larger bronchi, constituting what is understood by central pneumonia, a comparatively rare variety of this disease. But when the inflammation extends by continuity, along the fibrous tissue of the bronchi, to the air-cells, the pneumonic engorgement found on the periphery of the lung is generally limited, but often diffused, involving more or less of one or both lungs; and, in rare instances, sudden death occurs from an active hyperæmia taking place throughout the whole pulmonary parenchyma, constituting what Laennec has well described as suffocative catarrh associated with pneumonia (Herbert's edition of *Laennec*, pp. 93 and 207). Again: the rheumatic element is also transferred from one lobe of a lung to another, by the same law of metastasis which is observed in the rheumatisms of the white and fibrous tissues of the body generally."

The foregoing explanation, it cannot be denied, is both ingenious and plausible, and may be perhaps accepted as provisionally true by those who have no better one to propose; but we cannot conceal from ourselves that it is still in the state of an hypothesis, and can assert no claim to be adopted into the body of medical truth.

About sixty pages of the essay are occupied by a detailed history of eleven cases of pulmonary disease, to which a rheumatic origin and character are attributed. Without having been able clearly to perceive these attributes in all of them, or the dependence of all their details upon their alleged nature, we

have great pleasure in commanding them to the reader's attention as being narrated in an interesting manner, and as replete with apposite and useful reflections. These cases form only a portion of the twenty-seven of which an analysis is also given; a portion of them has already been made use of in the commencement of this notice. The whole will amply reward the reader's attention.

In the section on *Treatment*, the author speaks first of *depletion* as a remedy for simple idiopathic pneumonia; and after advocating what appears to us a singularly lavish use of bloodletting, he turns to the rheumatic form of the disease, in which he insists upon a still more liberal depletion. But most of all does this remedy appear to him salutary when rheumatic bronchitis and extensive engorgement exist contemporaneously in the same lung. Under these circumstances, he advises that the patient, if too weak to set up, should be placed in a semi-recumbent posture, and bled to syncope. If the quantity of blood, he continues, be too small, the operation should be soon repeated; diffusible stimulants, if necessary, being given to rouse the circulation, so that a sufficient quantity of blood may be had to remove congestion and control inflammation. Of this treatment, we are compelled to observe that it seems unnecessarily heroic. If any proposition has been of late years demonstrated, it is that profuse bleeding prolongs pneumonic congestion and effusion, while the expectant method counts fewer fatal cases in its lists than any other.

In fibro-bronchitis, our author advises *mercury* to be given in full doses often, or twelve grains once in the twenty-four hours, for the three or four first days of the seizure, or in doses of two or three grains every three or four hours, associated with about the same quantity of ipecacuanha. "From five to fifteen grains of nitrate of potassa may often be added with advantage to each dose." In broncho-pneumonia, attended with a frequent pulse and free perspiration, calomel, it is alleged, may be given freely, and continued for days without danger of producing ptyalism, especially if the patient be enjoined not to depress the action of his gums by taking cold drinks, and his bed be so placed that a draught of cold air cannot pass over his face. The author, in this connection, refers to experiments instituted by himself for the purpose of determining the catalytic power of mercury upon abnormal products of low organization. Those upon which he experimented were "the cartilaginous-like buttons" which form about the prepuce and corona glandis, as a result of neglected primary syphilis, and also open chancrea with indurated bases. The patients having been previously mildly impressed with mercury, the seat of the disease was covered with a freezing mixture long enough to produce a sense of numbness in the adjacent skin. The part was then allowed to resume its natural temperature, after which it was covered with a warm poultice. These trials are stated to have been attended with happy results. Digitalis, the author thinks, of great value in controlling the action of the heart, and as to some extent a succedaneum for depletion. Antimony he holds to be of no value whatever, in uncomplicated fibro-bronchitis. Opium and its preparations, he is of opinion should be dispensed with as general remedies for pulmonary engorgement, because their immediate effects are to quicken respiration and strengthen the heart's action. In this belief we fully coincide, convinced that much evil arises from the lavish use of narcotics in pulmonary affections, for the reasons which have been pointed out. These medicines require cautious and delicate management.

The indications for the use of *antimony* in pneumonia generally are very judiciously laid down by Dr. Buckler. He does not regard them as existing in acute fibro-bronchitis, nor in fibrous inflammation generally, and least of all in the first-mentioned disease, when it is conjoined with engorgement of the lungs.

Of the chemical remedies for rheumatic bronchitis and pneumonia, we have already spoken. Our author has treated of them more summarily than could have been wished. Doubtless, he is right in his belief, that there are cases of the diseases named in which they may play an important therapeutic part. But we repeat, that the indications he has laid down for their use are either not sufficient or not sufficiently systematized to be of much assistance to practi-

tioners. While we cordially commend his essay to the favourable judgment of the profession, as one containing original observation, sound commentary, and ingenious speculation, we must be allowed to express the hope that the author will not rest satisfied with his present contribution to pathology, and that he will, on the contrary, give more earnest study to the subjects he has discussed, enrich his materials with the results of renewed observation, and subject them to a thorough and systematic analysis, while he cautiously separates fact from speculation, leaving each to rest upon the basis of its own worth.

ART. XIII.—*Experimental Researches applied to Physiology and Pathology.* By E. BROWN-SÉQUARD, M. D., of the Faculty of Paris, etc. etc. New York: H. Baillière, 1853. 8vo. pp. 124.

THIS, though a small book in size, is, nevertheless, one replete with valuable matter. The interesting vivisections of Dr. Séquard, of which it treats, throw no small degree of light upon some of the confessedly obscure points connected with the physiology of the nervous system. Should the results of these experiments, as given by the author, be borne out by future observations, whether derived from direct investigations made upon the living animal, or from the domain of pathology, they will materially modify some of the doctrines, now taught as established truths, in reference to the functions and correlation of the different portions of the nervous system, and the part they play in the production of the phenomena of disease.

How far, in conducting his experiments, Dr. Séquard has guarded against the false or incomplete results which are so liable to occur in vivisections instituted with a view to determine the true physiological functions and relations of separate portions of the nervous system, and which lead so often to erroneous conclusions, we pretend not to judge. We would simply remark, that while his experiments appear to us to be, in general, ingenious and well-devised, the details of some of them are more loose and imperfect than we could have desired, while the points presumed by the author to be established by them are, occasionally, asserted with too great a degree of positiveness.

We have no desire to dispute the accuracy of any of the conclusions at which Dr. Séquard has arrived; we have a strong inclination to believe in the correctness of the majority of them, and would be pleased to see their truth unquestionably established.

The initial sentence of the work before us, announces a doctrine that we have long maintained in opposition to those who believe that all vital phenomena—all phenomena, indeed, of the living organism, without exception—are the direct result of nerve force or action. The doctrine we allude to is, "that every tissue possesses vital properties, in consequence of its peculiar organization, and that, in a completely developed animal, nutrition is the source of the vital properties, inasmuch as it is the cause of organization." The supposition that nerve action or influence is absolutely necessary to the performance of the functions of organic life has, we are persuaded, been the fruitful source of errors in pathology, leading to serious errors in the management of certain forms of disease.

Dr. Séquard's experiments in relation to the normal degree of the temperature of the human body in health are curious and instructive. From the facts he has adduced, he draws the conclusion that the normal temperature of the thoracic and abdominal viscera in the human species and in both sexes is between 102° and 103° F.; that is, some few degrees higher than is generally admitted.

His remarks on the value of cries as manifestations of pain are deserving of notice. We had been led to the same general conclusion as Dr. Séquard from our own observations made upon infants, and in older subjects labouring under disease, but had never been able to spare the time to test its accuracy by direct experiment.

"Cries and agitation may be attributed," Dr. S. remarks, "to a property of the nervous centres, which is completely different from the faculty of perception of painful or tactile sensations. That property is the reflex faculty of the true spinal marrow, as Dr. Marshall Hall calls it; it is the property of uniting, in co-ordinate movements, isolated muscular contractions, which is called by German physiologists the faculty of adaptation to an end. That property manifests itself by movements similar to those executed by unmitigated animals when they feel a pain; and it happens, sometimes, that these reflex movements are less disordered than the movements consecutive to a violent pain in an unmitigated animal. The *agitation* of the animals, deprived of all the parts of the encephalon, is merely the result of an action of the reflex faculty.

"The cries also appear to exist only in consequence of a reflex action. This appears difficult to be proved, and it will seem nearly impossible to admit that cries may be produced by an animal that has felt no pain, or that has not had the will of crying. We may consider a cry as a noise produced in the larynx, as many times a quick expiration is performed when the vocal cords are stretched. Now, as the tension of these cords, and the expiration, are produced by muscular contractions, it is easy to understand that these contractions are produced by a reflex action, as well as the contractions of the muscles of the limbs.

"For those who know that hiccup, coughing, sneezing, vomiting, &c., frequently are mere reflex phenomena, there ought to be no difficulty in admitting that crying is a pure reflex action.

"From the facts and reasonings contained in this note, I will now draw the following conclusions:—

"1. That the experiments by which many physiologists have endeavoured to prove that the cerebral lobes are not the exclusive seat of the perceptions, do not afford such proof.

"2. That animals can cry after the removal of the whole encephalon, except only the medulla oblongata.

"3. That the existence of cries cannot prove that there is a perception of pain, because cries result from muscular contractions, which may be pure reflex actions.

"4. That there is no proof that the pons varolii is the centre of perceptions either of touch or of pain.

"5. That if it be admitted that cries prove there is a perception of pain, we should have to admit that the medulla oblongata is also a centre for these perceptions."

The observations of Dr. Séquard in relation to muscular irritability in paralyzed limbs, and its semeiological value, give rise to the following conclusions:—

"1. The degree of muscular irritability in paralyzed parts, becomes rapidly greater than in the healthy parts, but, after a variable length of time, it diminishes, and, as it is well known, it may disappear.

"2. The muscles, deprived of the action of both the brain and the spinal marrow, become rapidly more irritable than the muscles deprived only of the action of the brain; but, after a certain time, there is also in them a more rapid diminution of irritability than in the others.

"3. It appears certain that the muscular irritability never disappears completely in parts deprived only of the cerebral action.

"4. In certain cases of paralysis, and more particularly of the face, as after the removal of a large part of the facial nerve, the muscular irritability may exist for years, at least in rabbits and other animals.

"5. It is very difficult, and sometimes almost impossible, to know the relative degree of muscular irritability in healthy parts compared with paralyzed parts, and such a knowledge could not be of a great semeiological value.

"6. The existence or the absence of reflex actions as a means of diagnosis between the cerebral and the spinal paralysis, has a much greater value than the degree of muscular irritability."

The observations of Dr. Séquard on the cure of epilepsy by the section of a nerve present nothing new. They serve, however, to sustain the correctness of what had before been previously asserted by many writers.

The following are curious results from a series of facts detailed by Dr. S.:—

“1. Red blood, that is, richly oxygenated blood (arterial or venous), is able to revive irritability in muscles, four or five hours after these organs have lost this property.

“2. Red blood is able to revive the vital properties of nerves and nervous centres, when these properties have not been lost for more than about an hour.

“3. Muscular irritability can be maintained for more than forty-one hours, by mere injections of blood, in limbs separated from the body of a rabbit.

“4. Muscular irritability may be re-established in limbs rendered rigid by chloroform for many days, even ten days.”

We had noted the foregoing, as among the more interesting of the results of Dr. Séquard's investigations, when we perused the work. We have no intention, however, of presenting a regular analysis, much less of entering upon a systematic criticism of the author's labours in the field of physiology and pathology he has attempted to illustrate by his experiments. Nor need we present the conclusions at which he has arrived in regard to each of the subjects that have been touched upon by him. We merely desire to draw attention to Dr. Séquard's work, and recommend its attentive study to all who feel an interest—and what member of the medical profession does not—in physiological and pathological investigations having reference to some of the most interesting and important points connected with the functions of the living organism in health, and with the character and seat of certain of its diseased conditions.

We shall look with some anxiety for the appearance of the work promised by Dr. Séquard in his prefatory note to the one before us. We believe ourselves warranted in assuring him of its favourable reception by the profession generally.

D. F. C.

ART. XIV.—*A Treatise on the Venereal Disease.* By JOHN HUNTER, F. R. S. With copious Additions by Dr. PHILIP RICORD, Surgeon to the Hôpital du Midi, Paris, etc. etc. Edited, with Notes, by FREEMAN J. BUMSTEAD, M. D. Physician to the Northwestern Dispensary, New York. Philadelphia: Blanchard & Lea, 1853. 8vo. pp. 520.

WE have so recently had occasion to notice the opinions of Mr. Hunter, and Dr. Ricord, in connection with those of other syphilographists, and, even were it otherwise, the opinions of these distinguished surgeons are so well known, all over the world, that it is unnecessary at this time to expatiate upon them. In announcing a new book bearing their names, we shall, therefore, content ourselves with indicating its plan and scope.

In the edition of Mr. Hunter's complete works prepared by Mr. Palmer, in 1837, the volume on the Venereal Diseases was annotated by Mr. Babington, of London, and likewise contained notes of Sir Everard Home. A translation of this into French, by Dr. Richelot, with notes and additions by Dr. Ricord, was published in Paris, in 1840; and a second edition of the same, considerably enlarged, appeared in 1852. It is this work, translated by Dr. Bumstead, of New York, which we now present to our readers; or we should rather say, that Dr. Bumstead has taken the original English edition of Mr. Hunter's book, and inserted a translation of Dr. Ricord's notes, from the last Paris edition, together with some by himself.

It is very interesting to trace the history of opinions held concerning any disease, from early times. As, in the processes of manufacture, materials, at first crude, gradually become more and more valuable, assume new and more lasting forms, until, under the skilful hand of man or the unerring *instinct* of the machine, they are developed into fabrics of permanent worth, or ideal beauty; so, in the progress of science, opinions undergo modifications, or are discarded, new facts are collected together, new theories are formed, and at length the truth is established in all its enduring symmetry.

The book whose title we have quoted illustrates our remark, with regard to

the medical history of Venereal Disease. Mr. Hunter first systematically investigated the subject, and discovered some of its pathological laws; and Dr. Ricord has carefully and laboriously re-examined the matter, modifying some of his predecessor's views, rejecting others, and inculcating new ones. So that this volume contains the result of the investigations of these celebrated men upon the diseases of which it treats.

Dr. Bumstead has furnished an excellent translation of the French notes, and has appended judicious observations of his own, wherever an error was to be corrected, a new fact added, or an obscurity or seeming contradiction explained.

We have always thought that this combined treatise of Hunter and Ricord was the best work on Venereal Diseases extant; and we are very glad to see it translated into English.

F. W. S.

ART. XV.—*A Treatise on Diseases of the Heart.* By O'B. BELLINGHAM, M. D., F. R. C. S., &c. Dublin: Fannin & Co., 1853. 8vo. pp. 252.

This is an excellent and systematic work, by an author whose position and experience entitle his opinions to be received with attention. The first part (which is the only one we have received) contains an examination of the heart in health and in disease. The first division of the subject is treated in detail. The anatomical peculiarities of the heart, and its relations with the neighbouring organs, receive a very clear and satisfactory description.

While the motions, impulse, and sounds of the healthy heart, form the basis upon which are founded Dr. B.'s exposition of his views of cardiac disease, it will be found that, on the other hand, these same pathological considerations have greatly weighed with him, in adopting the opinions which he holds, of the cause of the healthy sounds and movements. He considers, that both the first and second sound are due to the friction between the blood and the parietes of the orifices of the heart.

In the first sound, coincident with the ventricular systole, the friction is between the blood and the aortic and pulmonary orifices; while the second, synchronous with the diastole of the ventricles, is produced by the friction of the blood in its passage from the auricles into them. Thus, it will be seen that the author singles out but one of the various causes to which the first sound is attributed; his explanation of the origin of the second sound, although not new, is urged with more show of reason than has been heretofore done.

The pathological evidence in favour of these views, is suggested, according to our author, by the double sound, "which cannot be distinguished from the normal double sound of the heart," heard in cases of aneurism of the arch of the aorta. He says, page 99: "That, in certain instances, the first of these sounds, in others the second, and in others again, both these sounds are converted into murmurs, altogether analogous to the murmurs which accompany diseased states of the orifices and valves of the heart. That the aneurismal sounds are caused by friction between the blood and the parietes of the orifice of the sac, requires no proof, because there is no other agency to which they could be referred. This is at least evidence that a valvular apparatus and muscular walls are not essential to the production of sounds analogous to those of the heart. The conditions common to both are, a cavity into and out of which the blood passes with more or less force and rapidity; and if the friction between the blood and the parietes of the mouth of the sac is capable of developing, not merely a double sound similar to that of the heart, but murmurs which differ in nothing from those developed in diseased states of the heart, the same agent is evidently equal to produce analogous sounds at the orifices of the ventricles." The evidence from cardiac disease in favour of the friction theory is, according to our author, farther confirmed by the following circumstances, under which the *first* sound is converted into a murmur.

"1. When the aortic orifice or its valves become diseased, so as to *obstruct* the onward current of the blood. * * *

"2. When the walls of the left ventricle are hypertrophied, and the blood is propelled through the aortic orifice with increased *force*. * * *

"3. When the viscosity of the blood is diminished, and this fluid is propelled with increased *velocity* through the aortic orifice. * * *

"4. When the walls of the left ventricle are attenuated, the first sound of the heart comes to resemble the second sound, because the blood is propelled with less force, less blood is transmitted through the arterial orifice, and the systole lasts a shorter time.

"5. When the walls of the left ventricle are softened and have undergone fatty degeneration, the first sound of the heart becomes more feeble, because the blood is propelled into the aorta with less force. * * *

"6. When the cavity of the left ventricle is dilated, and its walls are increased in thickness, a larger amount of blood will be transmitted at each ventricular systole, and the first sound of the organ will necessarily be prolonged."

The second sound is seldom converted into a murmur, but a murmur which masks the second sound, is by no means rare, and is heard whenever the aortic valves permit regurgitation. An explanation of this is given by the author, which we have no room for. But the force of the second sound is much diminished—

"1. When the mitral orifice is much contracted, * * because but little blood can enter the ventricle from the auricle during the ventricular diastole."

2. When the ventricles are already gorged with blood.

The intermittent character of the heart's sounds, the author explains upon the same theory.

The second half of the volume is given to an examination of the heart in disease. The many interesting points discussed under this head, we can, of course, do no more than indicate. The characters presented by the impulse of the heart in disease, and the signs furnished by percussion and auscultation, are fully explained in the two chapters devoted to them. This is followed by a very interesting description of the "General signs of cardiac disease." Here, the countenance and posture of the patient receive a merited consideration, as well as the various conditions under which palpitation and epigastric pulsation are noticed. *Angina pectoris* is regarded by Dr. Bellingham as a symptom of disease of the heart, and not a distinct affection; its probable cause being an impediment to the coronary circulation, particularly to the return of blood by the coronary veins. After a careful examination of the varieties of the *pulse* in cardiac disease, our author concludes that they offer in some instances a material aid to the diagnosis, but that, owing to the usually complicated nature of structural disease of the heart, they give in many others no assistance whatever.

The secondary symptoms, such as congestion of the various internal organs, and dropsy, are described under their appropriate heads. The volume closes with a consideration of the causes, progress, and termination of cardiac disease.

We can heartily commend the study of this work to all interested in cardiac pathology. It is comprehensive and practical, well arranged and clearly written. The views held by the author, as to the manner in which the sounds arise, and the changes they undergo in disease are, if not correct, at least perfectly rational and intelligible, and account satisfactorily for many of the physical signs observed in disease of the heart.

M. S.

ART. XVI.—*Reports of Institutions for the Insane.*

1. *Of the McLean Asylum*, for 1851 and 1852.
2. *Of the Butler Hospital*, for 1851 and 1852.
3. *Of the Retreat at Hartford*, for 1851 and 1852.
4. *Of the Maine State Hospital*, for 1851 and 1852.
5. *Of the New Hampshire Asylum*, for 1852.
6. *Of the Vermont Asylum*, for 1851.
7. *Of the Boston Hospital (Paupers)*, for 1849, 1850, and 1851.

1. THE report by Dr. BELL, of the McLean Asylum, for the year 1851, is, like most of its predecessors, very brief, and is mostly devoted to a description of

the method by which the Cochituate water has been introduced into the buildings of the institution. A disbeliever in the value of statistics in insanity, the doctor makes his practice consistent with his theory by restricting these data to the simple facts—or, as he would say, “facts and opinions” of admission and condition at the time of discharge.

	Men.	Women.	Total.
Patients admitted in course of the year	89	79	164
Whole number in the Asylum	185	179	364
Discharged	90	83	173
Remaining at end of year	95	96	191
Of those discharged, there were cured	40	35	75
Died	15	14	29

“Of the deceased, eight were not under seventy years, and one was over ninety.”

In the report for 1852, it is stated that, “the call for room, during the past year, has far exceeded anything in our former experience. It is within bounds to say, that we have been obliged to refuse more female patients than we have received, and probably as many of both sexes, as we have admitted. * * * * Our last year’s experience demonstrates that another institution of the magnitude and character of this is as urgently demanded as have been any of our previous substitutes and extensions, which have, one after another, raised our aggregate from the less than seventy, whom I found on taking the charge, to the nearly three times that number we have been obliged to find a place for during the past three or four years.”

Hence the doctor recommends that another establishment, disconnected from the McLean Asylum, and intended for females alone, should be founded. “There are no advantages,” he observes, “of which I am aware, in having the insane of both sexes in one institution of this kind, whatever may be the case in pauper establishments, or where labour is expected of the inmates. On the contrary, there are many inconveniences and disadvantages. The customary arrangement of patients of both sexes in the same place, doubtless, had its origin in the expectation that only so many sufferers could be aggregated as would be sufficient for the full employment of a single directing head. It seems not a little singular, that a custom entailing so many objections should have been continued where its original basis had ceased to exist.”

	Men.	Women.	Total.
Patients admitted in the course of the year			145
Discharged			135
Remaining at the end of the year			201
Of those discharged, there were cured	37	35	72
Died	11	4	15
Admitted from 1837 to 1852, inclusive			2339
Recovered “ “ “			1173
Died “ “ “			271

	Men.	Women.	Total.
2. The number of patients in the Butler Hospital, on the 31st of December, 1850, was	50	63	113
Admitted in the course of 1851	33	35	68
Whole number	83	98	181
Discharged	22	32	54
Remaining, December 31, 1851	61	66	127
Of those discharged, there were cured	8	18	26
Died	7	9	16

Causes of death.—Chronic mania 8, “Bell’s disease” (typho-mania?) 4, paralytic affections 2, meningitis 1, extensive pulmonary and intestinal disease 1.

The returns of the United States census, for 1850, give the number of the insane in Rhode Island as 233, or 1 in 633 of the population. In 1850, the legislature of the State appointed a commissioner to inquire into the condition

of the public poor, and the insane. He visited all the towns, with a single exception, and reported the number of the insane as—paupers 143, all others 140, total 283, or one in 521 of the population. Dr. Ray remarks, that “guided by such information as we happen to possess in regard to the immediate question, and generally, by the amount of error such inquiries usually present, I think we may safely say that an addition of 50 per cent. would better express the actual truth.” This would make the number of insane 420, or one to every 351 of the inhabitants.

The increasing prevalence of insanity, which is implied by these statistics, induces Dr. Ray to a discussion of one of the most productive causes of this fearful malady—defective or perverted education. “The gross neglect,” he observes, “of the moral powers, those which guide the passions and determine the notions, is the crowning defect of the education of our times, ruinous in its consequences to the health, both of body and mind.” He recognizes “the home” as the place in which children should be taught “to acquire the power of governing passion and resisting the impulses of the lower appetites, of discerning the nicer shades of right and wrong, of sacrificing self to the call of benevolence or duty, and, amid trial and change, steadily keeping in view the great purposes of life. The time has never been,” he continues, “when this kind of training, in its highest condition, was very general in our country; but I submit, as a matter of fact, whether, imperfect as it has been, it has not greatly declined during the last few generations? Unquestionably, at one time, the domestic rule was needlessly rigid and disagreeable, and led to an asceticism of manners equally prejudicial to the mental health and the moral welfare. * * * At present, however, we have little to fear from this source, the danger all lying in the opposite direction. The asceticism of our ancestors was infinitely less injurious than the license which characterizes the domestic training of their descendants. How many of this generation complete their childhood, scarcely feeling the dominion of any will but their own, and obeying no higher law than the caprice of the moment. * * * * * The legitimate result of these defects in the education of our time, is, that finally the ordinary virtues of life are degraded to a very subordinate rank. Patient and persevering industry, with its slow and moderate rewards, honest frugality, and a temperance that restrains every excess, frequent and faithful self-examination, clear and well-digested views of duty, become distasteful to the mind which can breathe only an atmosphere of excitement, craving stimulus that rapidly consumes its energies and destroys that elasticity which enables it to arise from every pressure with new vigour and increased power of endurance. * * * * The conclusion of the whole matter is that insanity must necessarily increase in our community until the moral faculties shall be subjected to a higher culture, both in the school and the family.”

Report for 1852:—

		Men.	Women.	Total.
Patients, January 1, 1852		61	66	127
Admitted in course of the year		39	62	101
Whole number		100	128	228
Discharged		36	50	86
Remaining, December 31, 1852		64	78	142
Of those discharged, there were cured				30
Died				15

Causes of death.—“Acute mania 2, chronic mania 5, Bell’s disease 3, general paralysis 1, apoplexy 1, phthisis 1, heart affection 1, suicide 1.”

“As usual, several deaths occurred within a day or two after admission, from that very fatal form of cerebral disease, which, under the various names of ‘meningitis,’ ‘brain fever,’ ‘phrenitis,’ and ‘Bell’s disease,’ (and he might have added ‘typho-mania,’ the most common of all,) has now become very common in our establishments for the insane.”

This paragraph is quoted for the purpose of calling the attention of the general practitioner to the peculiar form of mental derangement therein mentioned. It is becoming quite common, particularly in large cities, and it is a form in which

the unpractised physician is almost certain to pursue a deleterious course of treatment. I once had two cases sent to me by one physician in the course of a few days, in both of which liberal venesection had been practised. They died as, I believe, such patients invariably do, after general bloodletting. It appears to be acknowledged, by all who have had experience in the treatment of this special form of mania, that a fatal result can be avoided only by active stimulation. Dr. Bell's description of the disease may be found in the *Journal of Insanity*, for 1849 or 1850.

During the first five years of the operations of the Butler Hospital, 491 patients were admitted, 127 discharged cured, and 80 died. During a greater part of the year for which the report is before us, the number of patients exceeded what was originally supposed to be the utmost limit of the means of accommodation.

In this report, as in its predecessor, Dr. Ray takes up the subject of the semiology of insanity, and handles it with that masterly power which is exhibited in all his efforts, wherever he writes seriously and in earnest. We can only give a general idea of this valuable, interesting, and truthful essay.

"Special and particular cases of insanity," he remarks, "no doubt there are, but the immense disparity between our own and all other times, in the prevalence of this disease, can only be attributed to the peculiarities which distinguish it from all other times. The press and the rostrum, the railway and the spinning-jenny, the steam-engine and the telegraph, republican institutions and social organizations, are agencies more potent in preparing the mind for insanity than any or all those vices and casualties which exert a more immediate and striking effect. This is the price we pay for civilization, and we shall continue to pay it, until that very distant day when men will have learned the difficult lesson of using their blessings without abusing them."

"The present is an age of great mental activity all over Christendom, and especially with us. The amount of it now required for maintaining the ordinary routine of the world, would have passed all conception a century ago. Especially has this been obvious in that constantly progressive enlargement of the field of industry, whereby the attention of men has been turned to an increasing variety of pursuits. * * * * * When we consider the amount of thought that has been concerned in bringing the manufacture of a pin, or a screw, to its present state of perfection, we may have a remote conception of the amount of that kind of mental exercise which is required in creating and conducting the countless processes of human industry. * * * *

"No single incident of civilization has contributed so much to maintain the mental activity of modern times, as the art of printing. * * * The multiplicity of books and of readers not only evinces a degree of mental activity which, a century ago, would have been thought to be scarcely within the bounds of possibility, but much of the literature of the day is more or less directly addressed to the lower sentiments of our nature, thereby impairing that supremacy of the higher which is indispensable in a healthy, well-ordered mind. * * * * * It is accessible to every reader in the land, and a large portion of those whom it attracts will be found among the young. If any one is disposed to doubt the accuracy of the fact, or the magnitude of its evils, let him look through any asylum in the country, and there will he see many a young man, once remarkable, perhaps, for endowment and promise, presenting one of the most loathsome and hopeless forms of disease, and will learn, upon examination, that in many the evil originated chiefly in the reading of books addressed to the imagination and passions. When we consider, too, that cases of this kind seldom recover, and thus add, by accumulation, to the actual amount of insanity in the world, the fact will account for much of its recent increase."

"Much of the mental activity that characterizes our people arises from the abundant opportunities that are offered for the pursuit of wealth, and the consequent variety and novelty of the enterprises undertaken for this purpose. * * * * The result (of fortunate speculations) all can see and admire, but few know anything of the wear and tear of mind by which it was achieved, of the laborious calculations, the anxious moments, the sleepless nights, the joy of success, the apprehension of failure. Indeed, our ways of doing business, our

notions of property, our ideas of happiness, all indicate, as strongly as traits of character can, that a large portion of our fellow-citizens habitually live and move, and have their being under an extraordinary pressure of excitement which brooks neither failure nor delay. * * * The cracking strain of all the faculties most concerned in the management of business, the hopes and fears, the joy and the sorrow, the anticipations of success or defeat, produce a rapid consumption of the mental energies, which strongly predisposes the mind to insanity.

"Over and above that mental activity which is excited by the ordinary pursuits of life, there prevails among us a disposition to penetrate into untrodden fields of inquiry; to construct new systems of philosophy and science; to become absorbed in themes of a special and peculiar character; and especially to speculate in whatever is strange or mysterious, whether in the natural or the spiritual world. * * * * We question everything; we pry into everything; and, in our opinions, we bring many things to light. * * * * Animal magnetism, biology, communications with the spiritual world, are now discussed by multitudes with a deeper interest than they ever manifest in those immutable laws of nature which, if understood and observed, would vastly enlarge the sum of human happiness. * * * * * We are naturally led to another manifestation of the mental activity of our times, especially important as being the prolific parent of many others. The intellectual education of the young, on which we are disposed to pride ourselves so highly, is more calculated to stimulate a few of the mental faculties than to produce the harmonious development with the strong and healthy condition of all. * * * It may make brilliant and showy men, not incapable, in fact, of producing a sensation in the world, but it will not preserve them from the seductions of fashionable systems in philosophy or morals, nor fit them for meeting the practical exigencies of life in the best possible manner. * * * Under a more rational training, we have a right to suppose that a multitude of subjects which now seriously engage the attention of men, with no better result than to weaken, if not destroy, every conservative principle in their minds, would never be entertained, and thus a prolific source of insanity would be avoided.

"Another mental habit of our times, strongly calculated to produce an unhealthy condition of mind, is that of concentrating the thoughts and interests upon a single idea. Whatever object is deemed worthy of promotion, whether it be morals, politics, literature, or religion, that object is thenceforward regarded as of paramount importance, compared with which all others sink into insignificance. By the individual it is believed to be the great question of the day, and destined, like Aaron's rod, to swallow up every other. * * * At last, he gets to think that there is no hope for the race beyond the pale of his little *ism* or *ology*; and in his zeal for propagating it, he is ready to ride, rough-shod, over the most deliberate convictions and most cherished sentiments of his fellow-men. * * * This habitual confinement to a very limited sphere of thought, tends to invest the favourite idea with a false colouring, if I may so speak, which distorts its natural proportions and relations, until it finally assumes all the characters of a *delusion*. * * *

"Another characteristic of the present generation, deserving of notice in this connection, is a remarkable proneness to excess and exaggeration in all its intellectual manifestations. Truth is supposed to require a high colouring to make it sufficiently impressive; while the calm, the plain, the moderate, whether in the subject-matter or the form of expression, is apt to be regarded as 'stale, flat, and unprofitable.' * * * High-sounding words are mistaken for depth of meaning, extravagance for intensity, and the feverish heat of a jaded fancy for the fervors of a true inspiration. * * * To be popular, philosophy must abound in startling theories, and challenge our strongest and dearest convictions; education must aim at apparently great results, rather than the vigorous growth and symmetrical development of the mental faculties; poetry and romance must lay bare the morbid anatomy of the heart, in order to find the real sources of moral life and the true principles of social organization. * * * It cannot be questioned that this fondness for the intense, whether real or mock, is unfavourable to mental health, and has contributed, in some degree, to the recent increase of insanity among us.

"Perhaps nothing is better calculated to foster the kind of mental activity in question, than the practical working of our republican institutions. * * * The political agitation, which is never at rest, around the citizen of a republic, is constantly placing before him great questions of public policy, which may be decided with little knowledge of the subject, but none the less zeal—perhaps with more. * * * Whatever be the occasion, he feels called upon to have an opinion of his own; and if an eye to the main chance shows it to be unsafe to speak out his thoughts, then his ingenuity is exerted to conceal them by means of false issues, double meaning, and non-committal, and the amount of mental exercise necessary for this end would suffice, a half dozen times over, for the ordinary routine of life. But the mental activity which is excited directly by free institutions, is not confined to political matters. It pervades every sphere of action, every exercise of thought. The almost absolute freedom from restraint, and the independence of foreign control, even in opinions merely, lead to a certain hurry and impetuosity of the vital movements, and an impatience that seeks for results by extraordinary effort or superficial methods. * * * We rush into every strife, and take sides in every question that agitates the public mind. * * * We have no idea of any division of labour here, and think ourselves as competent to sit in judgment on questions that have accidentally been brought before the public notice, as they who have made them the study of a lifetime. If, in this way, every man is not his own doctor, or lawyer, or minister, yet he enters, with the zeal of a partisan, into every contest between rival systems of medicine, law, and divinity. * * * How different, in this respect, is the present generation from all the past, in which people were quite satisfied, in regard to certain subjects, with taking their opinions upon trust, in the belief that others might be better qualified, by education and experience, to form them, than they were themselves, and thereby avoided one fertile source of that excitement and agitation which prepare the mind for insanity."

This is but a mere skeleton of the article before us; but, in the language of the article itself, it is "enough for those who are disposed to profit by the warning; and too much, probably, for the larger number, who will regard it as merely an ingenious speculation."

Near the close, Dr. Ray asks, "Whoever heard of a book on mental dietetics, or has the slightest suspicion that the health of the mind may be affected by the manner in which its exercise is managed?" This query is now satisfactorily answered, by the admirable little treatise by Dr. Fenchtersleben, entitled "Dietetics of the Soul," originally published at Vienna, but translated and republished in London. A few copies have been imported, and found an immediate sale. Although it contains some extravagancies, yet it should be read by every physician, as a certain modicum of the doctrines inculcated therein would be of essential value in general practice.

3. The report for 1851, from the Hartford Retreat, gives the following statistics:—

	Men.	Women.	Total.
Patients, April 1, 1851	72	85	157
Admitted in course of the year	68	90	158
Whole number	140	175	315
Discharged	52	82	134
Remaining April 1, 1852	88	93	181
Of those discharged there were cured	26	42	68
Died	9	13	22

Causes of death.—Consumption 2, chronic inflammation of the intestines 2, cancer 1, apoplexy 3, general paralysis 2, paralysis 5, dysentery 4, exhaustion 2, general debility 1.

Nine years ago the daily average number of patients was 84; during the year covered by this report it was 168.

The following remarks by Dr. Butler will apply with equal truth to any good asylum, and the ideas therein contained should always be considered in making an estimate of the utility of institutions for the insane: "The benefits conferred by the institution will not be correctly appreciated, if estimated

alone by the number of those discharged as recovered. Among those who leave us as more or less improved, or whose mental state is reported as stationary, are many who have received benefits little less in importance to themselves and their friends, than that of restoration to sanity. These take with them, besides an improvement of their general health, greater ability to take proper care of themselves, to control their impulses, and to make a better use of their remaining powers of body and of mind. If patients cannot be restored to reason, it is something to have acquired habits of cleanliness and decency, of peacefulness and industry."

The custom, so common in Continental Europe, of connecting with the institutions for the insane, chaplains, whose duty it is to visit the patients daily, has met with but little favour upon this side of the Atlantic, and the Retreat is the only asylum at which it has been adopted. The numerous and grave objections to the plan, have there been overcome or rendered nugatory by the rare qualifications of the incumbent. Were all clergymen *fac-similes* of the late Thomas H. Gallaudet; did they understand human nature, psychology, and insanity as well as he; and had they that peculiar natural adaptation to the place which no individual training or effort can attain, the custom might be generally followed, and, undoubtedly, with material benefit. "His equanimity and calmness," says Dr. Butler, "checked the unduly excited, his suavity and quiet dignity calmed the turbulent; his kindness, cheerfulness, and wit, with his ready repartee, cheered and amused the desponding; while his rare conversational powers, and his fund of anecdote, and of general and useful knowledge, made him the welcome companion of all. His aptness of illustration, the happy manner in which he applied practical religious truth to the varying circumstances of the different patients, together with his quick perception of individual peculiarities, gave him ready access to every mind, especially to that class of religious monomaniacs who are difficult of approach, and whose minds appear most obstinately closed against right and natural views. * * * He seemed to bring sunlight with him into our household, and he left its cheering influences in every heart."

The report for 1852 is from the pen of Dr. E. H. Hunt, who acted as physician to the Retreat during the absence, on a voyage to Europe, of Dr. Butler:—

		Men.	Women.	Total.
Patients, April 1, 1852	.	88	93	181
Admitted in course of the year	.	66	74	140
Whole number	.	154	167	321
Discharged	.	74	77	151
Remaining, April 1, 1853	.	80	90	170
Of those discharged, there were cured	.	32	32	64
Died	.	11	10	21
Whole number, since opening of the Retreat	.			2318
Discharged, cured	.			1267
Died	.			243

It appears from this report that there are no statute laws in regard to the confinement of patients in the Retreat. Dr. Hunt very justly remarks, that "the security of the public demands that some simple and readily accessible means of approximately determining the fact of insanity, by means of a careful investigation of each case by some independent and impartial tribunal, should be provided by legislation, and that its requirements, in all cases, be complied with."

Dr. Hunt suggests that, in order to "render the institution worthy, at least, of the entire confidence of even the most timid and exacting," there shall be "a regular monthly visit of two of the members of this board, who shall make a thorough examination of every part of the institution, and learn the reason for every apparent indication of severity or neglect." Now the Retreat, among its immediate officers, has a chaplain, who, by virtue of his sacred profession, ought not to brook the least mal-treatment of the patients; it has its "Board of Managers," and a "Medical Board," both of which, as appears by the report, make "frequent official and unofficial visits;" and it has a "Visiting Committee of

Ladies," numbering seven persons. If all these guards are insufficient to prevent the invasion of abuses, it would seem that prevention is impossible. They are enough, at least, to render the labours of the superintendent sufficiently onerous ; and, if the proposed committee be appointed, we would advise him, unless he wishes soon to be compelled again to flee to Europe in search of health, to suggest still another committee—a "Resident Committee for the Reception of Committees." That which Dr. Bell very properly terms "*the tittle-tattle*," in regard to alleged abuses at the asylums, constitutes a portion of the mental pabulum of certain classes of the people, and can no more be suppressed by additional efforts for the prevention of any real cause in which they might originate, than the delusions of an insane person can be removed by assuring him that they are erroneous and absurd.

4. The report of the Maine Insane Hospital embraces a period of twenty months, from the 31st of March, 1851, to the 30th of November, 1852.

	Men.	Women.	Total.
Patients, at the commencement of the period	34	24	58
Admitted since	64	35	99
Whole number	98	59	157
Discharged	47	25	72
Remaining at the close of the period	51	34	85
Of those discharged, there were cured	22	14	36
Died	8	1	9

"One died with pneumonia, three with general paralysis, one with scrofula, one with malignant sore throat, one with epilepsy, one with inflammation of the liver, and one with consumption."

Since the institution was opened it has received 115 suicidal patients, 61 males and 54 females. Only two of these, and those both males, have committed suicide while in the hospital, though several have done so after being removed therefrom. Of homicidal patients there have been 69, 53 males and 16 females. "No accident from any of these has ever occurred." "The suicidal form of insanity is as likely to recover as any other form, but the homicidal much more rarely recovers." "There have been twenty who had both suicidal and homicidal propensities, eleven males and nine females."

Of patients inheriting a predisposition to insanity, "three hundred and thirty-seven have enjoyed the benefits of the hospital and been discharged. One hundred and forty-eight of them went home cured; a proportion nearly equal to that which obtains among those who do not inherit the disease."

Dr. Harlow thus writes of the practical operation of *that "Maine Law"* which provides that all persons charged with crime, and alleged to be insane, shall be removed to the Insane Hospital for the purpose of testing the validity of the allegation: "We have had five such cases within the last twenty months, sent here by order of the court. They were all males. Three of them were charged with the crime of *arson*, one with *larceny*, and one with *assault with intent to kill*. Three proved to be insane beyond a doubt. The other two were brothers, one aged seventeen, the other ten, and both charged with the crime of *arson*.

"In the case of the older boy, so much doubt existed in relation to the presence of insanity that he was removed from the hospital soon after we reported him to the court. The younger boy is of diminutive size, physically slender, strongly marked with the nervous temperament, quite active and irritable, and has rather a wild, peculiar expression of the eye, and the impediment of stammering. He is unlike any other boy we have ever seen, an enigma of no easy solution. He possesses a good memory, an uncommon observation, great inquisitiveness, acute perception, strong affection, emotion, and feeling, little or no judgment, and a will which brooks restraint with great difficulty. He is, naturally, far from being malicious, but possesses kind and tender feelings towards all, except when under the influence of passion. He is forward, fearless, and bold. He is a creature of impulse; and here, we consider, lies the secret of the whole matter. Impulse, if we may so speak, usurped all power, and impelled him, in the absence of judgment and all conscience, without motive or thought,

to commit the crime with which he is charged. We could not consider him in any other light than as an irresponsible boy, as not accountable for the acts which he committed, on the ground of *an undeveloped judgment and a want of conscience.*"

5. Dr. McFarland having resigned the Superintendence of the New Hampshire Asylum, his place has been filled by the appointment of Dr. John E. Tyler, the author of the report now before us.

		Men.	Women.	Total.
Patients on the 31st of May, 1852	.	63	55	118
Admitted in course of the year	.	68	64	132
Whole number	.	131	119	250
Discharged	.	61	46	107
Remaining, May 31, 1853	.	70	73	143
Of those discharged, there were cured	.	41	22	63
Died	.	5	3	8

Causes of death.—Chronic mania 3, consumption 2, exhaustion 2, suicide 1. From the opening of the asylum, in 1843, 1,058 patients have been received, 434 discharged recovered, and 92 have died.

The report is brief, and does not touch upon any important subject which has not heretofore been fully discussed in these "notices."

6. The report of Dr. Rockwell, of the Vermont Asylum, is limited to three pages.

		Men.	Women.	Total.
Patients on the 1st of August, 1850	.	173	155	328
Admitted in course of the year	.	63	74	137
Whole number	.	236	229	465
Discharged	.	67	63	130
Remaining, August 1, 1851	.	169	166	335
Of those discharged, there were cured	.			73
Died	.			35
Admitted since the opening of the asylum	.			1746
Discharged cured	.			818

A severe form of dysentery prevailed chiefly in the months of August and September (1850). Ninety-three patients were attacked by this disease, of whom sixteen died. Nearly all of our attendants and assistants were attacked by the same disease, all of whom recovered.

In treating of the caution necessary to be observed in regard to the removal of persons to the asylum, Dr. Rockwell makes the subjoined remarks, which coincide with the opinions which we long since formed and expressed in regard to the class of cases in question.

"There is one class of cases, especially, which are frequently sent too early to a lunatic asylum, I mean that of puerperal cases. We have repeatedly had women brought to the asylum in less than two weeks from their accouchement. Some of them have recovered very soon, but would, probably, have recovered as well had they remained at home. Others have died, apparently from exhaustion, who might have recovered had it not been for the exposure and fatigue of the journey."

7. The Boston Lunatic Hospital was opened in 1839, and the report of 1849, by Dr. STEDMAN, contains the principal data in regard to the movement of its population, during the first decennium of its existence.

		Men.	Women.	Total.
Whole number of patients	.	313	298	611
Discharged	.	232	175	407
Cured	.			180
Died	.			129
Remaining	.			204

Single 329, married 211, widowed 61, unknown 10.

Causes of death.—Consumption 26, marasmus 13, general paralysis 11, epilepsy 10, dysentery 10, Asiatic cholera 10, general debility 9, diseases of heart 8, hemiplegia 5, exhaustion 4, chronic diarrhoea 4, suicide 3, chronic inflammation of brain 2, erysipelas 2, variola, inflammation of stomach and intestines, inflammation of intestines, fungus haematoles, typhoid fever, serofula, cholera morbus, pleuro-pneumonia, tubercular peritonitis, cancer, purpura, and wound of an artery, 1 each.

"During the last year, and that preceding, dysentery prevailed epidemically, and very severely. Erysipelas has been of frequent occurrence among us. The Asiatic cholera was not so terrific in its ravages here as we had anticipated. On its first irruption, provision was made for such patients as might be attacked by it, by converting our bowling-alley building into a cholera hospital. Great care was also taken in properly ventilating the halls and rooms of the main hospital, in regulating the diet, and in watching and arresting the very first movements towards this affection. Numerous inmates were seized with diarrhoea during this epidemic, and had it not been for the timely and successful attempts made to check this apparently premonitory symptom, cholera would not have left this household so free from its ravages as it did. The number of those prostrated with true cholera was sixteen. Of these, ten died; all of whom had been insane for too long a period to allow of any expectation of recovery from their mental disease."

In the course of the year one of the patients stabbed another in the leg, with a knife which he procured in the dining-room. The hemorrhage was arrested by tying the femoral artery, and, twelve days afterwards, secondary hemorrhage by tying the external iliac. Death, however, ensued, twenty-five days subsequent to the primary wound. The investigation by the grand-jury established the fact that the attendant upon the patient who committed the outrage had neglected to follow the printed rules of the house, obedience to which would have prevented the accident.

In a case of prolonged abstinence from food, Dr. Stedman administered chloroform, and, while the patient was under its influence, "nourishing liquids were readily swallowed." "I have since," he remarks, "resorted to the same treatment in other cases, with a like beneficial result. My belief now is, that, in anaesthetic agents, we have a perfect preventive of self-destruction from starvation, in those cases, at least, where there is no organic lesion of the stomach."

From the report for 1850.

		Men.	Women.	Total.
Number of patients, November 30, 1849	.	80	123	203
Admitted in course of the year	.	27	46	73
Whole number	.	107	169	276
Discharged	.	26	46	72
Remaining, November 30, 1850	.	81	123	204
Of those discharged, there were cured	.	12	25	37
Died	.	8	17	25

Died of consumption 4, general debility 3, paralysis 2, exhaustion 2, dropsy 1, erysipelas 1, marasmus 1, dysentery 11.

"Dysentery has been the most prevalent and fatal disease with which we have had to contend. It commenced about the 1st of August, and continued till about the 1st of November. During this period forty-seven cases occurred of a severe and very intractable character. Of this number, ten died. It proved most fatal among the aged and the melancholic, and took off but one case in which there was any certainty of recovery from mental disease. It was remarked that only the most emaciated, or such as were suffering from other and long standing disease, succumbed to dysentery; the fat and more robust who were attacked survived. One patient, an Indian, in good bodily health, afflicted with chronic mania, and who had been insane three years, was seized with the severest form of dysentery which has ever come under my observation. While in the height of the malady, his mental operations began to undergo a change, after which his mental and bodily convalescence went on together, and resulted

in the perfect restoration of the entire man. Another, a man who had been insane over twenty years, and quite a difficult one to manage, owing to his strong mischievous propensities, was attacked with the same affection, and remained dangerously ill for some weeks. He recovered from dysentery, and now no patient in the house is more quiet and controllable. Indeed, to many he would appear mentally sound."

In June, 1851, Dr. Stedman resigned his office, and Dr. Clement A. Walker was elected as his successor. The report for that year is from the pen of the latter.

		Men.	Women.	Total.
Patients, November 30, 1850	.	81	123	204
Admitted in course of the year	.	46	46	92
Whole number	.	127	169	296
Discharged	.	27	28	55
Remaining, November 30, 1851	.	100	141	241
Of those discharged, there were cured	.	13	14	27
Died	.	10	12	22

Causes of death.—Consumption 4, exhaustion 3, general debility 2, dysentery 2, epilepsy 2, marasmus 2, apoplexy, typhoid fever, typhus fever, pneumonia, inflammation of bladder, general paralysis, and chronic diarrhoea, 1 each.

"But one epidemic has appeared among us the past year, and although dysentery was prevalent, numbering nearly fifty cases, yet it was of mild type, and was fatal in but one or two instances."

The following case of "an intelligent Irish lad" is worthy of a place upon permanent record:—

"The little fellow, but thirteen years of age, arrived at Boston, on board an emigrant vessel, in July last (1851), having no friends here with the exception of a brother, who had preceded him but a few months. He landed on Thursday, and on Saturday became a raving maniac. Confused by the strangeness, and, to his eyes, the magnificence of the city, which, for weeks, had been the culminating point of his anticipations; he wandered about, gazing upon the novelties by day, and dreaming of them by night, until he believed himself the inhabitant of a fairy land, and could not recognize the brother, whose bed he shared; 'for,' said he, 'he was dressed so nice, and we usedn't to be so at home.' Reason soon fled, and for weeks he by turns babbled like a child and raved like a madman. At length convalescence was established, and has since rapidly progressed. A few weeks more and he will doubtless go out from us whole."

Of the ninety-two patients admitted in the course of the year, sixty-one were foreigners, fifty of them from Ireland.

Persons acquainted with the subject will perceive, by the statistics herein quoted, how, as time has progressed, the great predominance in the number of males over that of females in our public institutions for the insane has disappeared. Indeed, *from these data*, it would appear that there are more insane females than males. Excluding the Maine Hospital, where, since the conflagration, the apartments for men greatly exceed those for women, the number of patients remaining in the above-mentioned asylums, at the time of last report (except the McLean, of which the latest report does not distinguish the numbers of the sexes) was, of males 582, females 644, and the number of admissions, in course of the preceding year, males 367, females 399.

P. E.

ART. XVII.—*Lectures on Surgical Pathology,* delivered at the Royal College of Surgeons of England. By JAMES PAGET, F. R. S., lately Professor of Anatomy and Surgery to the College; Assistant Surgeon and lecturer on Physiology at St. Bartholomew's Hospital: London, 1853, 2 vols. 8vo.

THESE two volumes contain the lectures which Mr. Paget delivered at the Royal College of Surgeons, during the years elapsing from 1847 to 1852 inclusive, as the Professor of Anatomy and Surgery to that body. They were listened to with the greatest respect and attention, each one being anticipated as an intellectual feast. With the exception of those relating to malignant tumours, they have already appeared in the columns of the *London Medical Gazette*, and have been read, quoted, and admired far and wide.

The first volume, containing 500 pages, treats of numerous important subjects, as follows: NORMAL NUTRITION, including the formative process, and growth; Hypertrophy and Atrophy, with the degenerations accompanying and indicating the latter; Repair and Reproduction, embracing, particularly, descriptions of the materials provided for the reparation of wounds, fractures, and other injuries, and the processes by which this repair is accomplished; Inflammation, its phenomena, nature, and causes, the changes which it produces in the tissues inflamed, its products and their developments and degenerations, its relations to the process of normal nutrition; Mortification, its phenomena, nature, causes, and the methods by which its effects are recovered from; and, lastly, Specific Diseases, their peculiarities as contrasted with non-specific affections, and the theory of their production.

The second volume, of more than 600 pages, is devoted to the consideration of Tumours, simple and malignant, and tubercle.

The amount of practical research, and the varied learning exhibited in these volumes are really remarkable. We are delighted with the laborious and accurate observation, the lucid description, the powers of comparison and generalization, and the philosophical deduction which every page exhibits, as well as with the elegant simplicity of style and the lofty tone of the whole.

We need not say that Mr. Paget has availed himself of all the aids which Modern Chemistry and Microscopy lend to the study of Pathology, and with which no one is more familiar than himself.

Both volumes are profusely illustrated and embellished by drawings.

We think we do not err in saying that, since the publication of Mr. Hunter's works, no contribution has been made in the English language of so much value, in Surgical Pathology, as this of Mr. Paget.

The two volumes have been reprinted in one by Messrs. Lindsay & Blakiston, of this city.

F. W. S.

ART. XVIII.—*A Treatise on Operative Ophthalmic Surgery.* By H. HAYNES WALTON, F. R. C. S. E., Surgeon to the Central London Ophthalmic Hospital, &c. &c. First American from the first London Edition. Illustrated by 169 Engravings in Wood. Edited by S. Littell, M. D., author of a Manual of the Diseases of the Eye, Surgeon to Wills Hospital, &c. &c. Philadelphia, Lindsay & Blakiston, 1853: 8vo. pp. 599.

THE credence accorded to exploded methods of treatment, revived and proclaimed as novelties; to the absurdities frequently announced as improvements, and to the impossibilities claimed to have been achieved by imaginative specialists, incontestably demonstrate the ignorance which prevails in regard to ophthalmic medicine. Every attempt, therefore, to enlighten the profession in relation to this department of our science, to reclaim it from the mere specialist and the charlatan, and to bring it within the domain of legitimate medicine, is entitled to approbation. Such is the design of the work before us.

Though limited in its range, as its title indicates, to operative ophthalmic surgery, it is, so far as it goes, a valuable contribution to our science, and its publication will exert a salutary influence. Its author, if not perfectly familiar with the literature of the subject, has been educated in a good school, has had extensive opportunities for experience, and possesses the habits of observation and reflection to benefit by them. His work throughout bears evidence, of an intimate acquaintance with the principles of general pathology, and of the sound common sense which characterizes the British school of ophthalmic medicine, and which strongly contrasts with the fancies and conceits promulgated at some of the Parisian clinics.

The subjects treated in the work are: 1. The use of Chloroform in Ophthalmic Surgery. 2. Ophthalmic Instruments in general. 3. Injuries from Mechanical and Chemical Agents, &c. 4. Foreign Bodies on the Surface, &c. 5. Affections of the Eyelids. 6. Affections of the Puncta, the Canaliculari, and the Lachrymal Tube. 7. Caries of the Orbit. 8. Nævi Materni, &c. 9. Incision of the Conjunctiva and of the subjacent Cellular Tissue in Chemosis from Purulent Ophthalmia. 10. Strabismus, &c. 11. Tumours of Eyelid. 12. Protrusion of the Eyeball, &c. 13. Staphyloma of the Sclerotica and Cornea. 14. Conical Cornea. 15. Removal of Opacities of the Cornea by Operation. 16. Cataract, &c. 17. Entozoa within the Eyeball. 18. Artificial Eyes. 19. Malignant Affections of the Eye. 20. Artificial Pupil, &c. 21. Extirpation of the Eyeball, &c.

The notes by the editor, Dr. Littell, who is well known to have devoted much attention to this branch, are few but judicious.

The style in which the work is issued is very creditable to the publishers; but we have to regret that they should have omitted the history of ophthalmic surgery, which constitutes the first chapter of the original; for, whatever may have been its imperfections, it is unjust to an author to mutilate his work, and curtail it of a part which he may deem important to its completeness.

ART. XIX.—*The Elements of Materia Medica and Therapeutics.* By JONATHAN PEREIRA, M. D., F. R. S., and L. S. Third American edition, enlarged and improved by the author; including notices of most of the medicinal substances in use in the civilized world, and forming an Encyclopaedia of Materia Medica. Edited by JOSEPH CARSON, M. D., Professor of Materia Medica in the University of Pennsylvania; Fellow of the College of Physicians of Philadelphia, etc. Philadelphia: Blanchard & Lea, 1852 and 1854. Vol. I. pp. 838, Vol. II. pp. 1226.

Our readers will learn with pleasure that the second volume, which completes this standard scientific work, has been at last published. This edition was revised by its lamented author with special reference to the American reprint, and it contains the directions of the last revision of the U. S. Pharmacopœia.

In copiousness of details, in extent, variety, and accuracy of information, and in lucid explanation of difficult and recondite subjects, this work is admitted, as the editors justly observe, to surpass all others on *materia medica* hitherto published.

We hope, in our next number, to be able to give a review of this complete encyclopædia of *materia medica*.

QUARTERLY SUMMARY
OF THE
IMPROVEMENTS AND DISCOVERIES
IN THE
MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *The Corpusculus Tactus.*—Mr. HUXLEY has published, in the *Journal of Microscopical Science* for October, some interesting observations on these remarkable bodies. The following are the results of Mr. Huxley's researches:—

"1. He has found in the human finger papillæ containing both corpuscles and vessels, though never any destitute of corpuscles, and yet containing nerves. It follows that the distinction originally made by Wagner into corpuscular and vascular papillæ cannot be absolutely maintained.

"2. He believes that the corpuscle is not histologically a special structure, but is composed of tissue not radically different from that of the papilla itself, the sole difference consisting in this, that the elastic bands and filaments which the corpuscle contains are more or less parallel to one another, and perpendicular to the axis of the corpuscle. In one respect, however, he believes the corpuscles to be peculiar, namely, that they are the modified extremity of the neurilemma of the nervous tubules which enter the papilla.

"3. Without positively denying that the nerves may end in loops, he states that he has never been able to convince himself of this mode of termination; and that, on the other hand, he has frequently observed the nervous tubules to end by pointed extremities, which appear to be continuous with the tissue of the corpuscle.

"4. He considers the corpuscles in question as analogous to the Pacinian bodies, in which latter bodies he denies the existence of concentric laminæ and of a central cavity, and considers them as nothing more than thickened processes of the neurilemma of the nerve to which they are attached, differing from the tactile corpuscles only in the circumstance that the thickening in the latter takes place on each side of the nerve fibril, while in the Pacinian body it takes place on both sides.—*Assoc. Med. Journ.* Nov. 18.

2. *Mode of Termination of the Nerves.*—From a paper by RUDOLPH WAGNER, in the *Annales des Sciences Naturelles*, xix. 370, we extract the following statement of that distinguished physiologist's late researches on this much vexed subject. His investigation has been carried on chiefly in relation to the ending of the nervous filaments in the dental pulp, the papillæ of the tongue, and the labyrinth of the ear.

In the tooth-pulp, the nerves end by free extremities; and though they form loops in great number, yet the same fibril may be traced through several loops, and appears always to terminate at last by a free ending. In the lingual papillæ, too, the termination by loops is apparent only, and the deception arises from

the mere superposition of one curving fibre over another, each afterward pursuing a separate course, and ending free.

In the labyrinth, Wagner observes: 1, a system of fibres manifestly ending by free extremities; 2, a set of looping fibrillæ; 3, another system of fine branching fibres; the connection between which three systems is not easily traced. He concludes, "provisionally," that the auditory nerves consist of primitive fibres, interrupted in their course by the frequent insertion of "ganglionic cells," which, connecting the ends of the interrupted fibre, are necessarily attached by each end, or "bipolar;" that these fibres then form with the loops a terminal plexus, next pass into the condition of pale thin fibres (without the medullary pulp), and that these ramify; and that, at the extremity of each branch, there is seated a ganglionic cell, fixed on it "like a pear by its stalk," and hence "unipolar."

Wagner concludes, also, from his examination of the nervous fibres of the lachrymal gland, and of muscle, that all the primitive nervous fibres, motor, sensory, and "trophic," subdivide many times, and never form terminal loops; that free ending of the nervous fibrils is the general rule, and that to these fibrils are attached either the elements of the tissues, or, as appears to occur in many cases, ganglionic (nervous) cells, forming as it were "terminal buttons."

This conclusion with respect to the termination of the nervous filaments by free extremities, and the absence of proof, to say the least, of the ending being by loops, manifestly tallies with the observations of Mr. Huxley above detailed.

—*Assoc. Med. Journ.* Nov. 18, 1853.

3. Bloodvessels of the Lungs.—Dr. JAMES NEWTON BEALE has submitted to the Royal Society (*Phil. Mag.* September) the results of a series of careful injections of the pulmonary and bronchial vessels, which, he finds, have no communication whatever with one another; and the most novel result of his investigations is, that the so-called bronchial artery does not supply the bronchi at all.

The pulmonary artery may be thoroughly injected without the fluid passing in the least degree into the "bronchial" vessels, and *vice versa*.

1. The pulmonary artery makes no anastomosis whatever with any other artery, nor do its own branches anastomose with one another; its branches are distributed directly to the air-cells, and none go to any of the other tissues of the lungs, except some few which perforate the subpleural cellular tissue, and are distributed to the pleura; some of these also cross the posterior mediastinum, beneath the pleura, and reach the thoracic pleura.

2. The bronchial arteries end in veins, which ramify in the subpleural cellular tissue; the cellular tissue of the lung being the part supplied by these (so-called) bronchial vessels. The greater part of these bronchial veins pass into the posterior mediastinum, and empty themselves into the oesophageal and other veins.

3. The bronchial mucous membrane is very freely supplied with a very close plexus of vessels, of a peculiar and very characteristic description, which is found to ramify in every part of the bronchial membranes, even as high as the trachea. The whole of this plexus is a continuation of the vascular plexus of the air-cells, and therefore derived from the pulmonary artery, but only thus indirectly, as no branch of that vessel goes directly to the mucous membrane.

4. The pulmonary veins are formed by the junction of two distinct sets of radicles: one set derived from that part of the air-cells most distant from the minute terminal bronchus entering each lobule, and which radicles form small trunks visible on the surface of the lung between the lobules. The other set is derived from the bases of the pulmonary lobule, and go to supply the bronchial mucous membrane before entering the pulmonary vein.

5. The coats of the lymphatic vessels of the lung are supplied by blood-vessels derived from the air-cells, and which terminate in the pulmonary veins; and the distribution of bloodvessels on the coats of the lymphatic bears a strong resemblance to that of the capillaries on the bronchial mucous membrane.—*Ibid.*

4. *Glands in connection with the Eye and Nose.*—Dr. SAPPEY has published, in the recent numbers of the *Gazette Médicale* (Nos. 33, 34, 35), some researches on the glandular secreting apparatus of the eye and nostrils.

He describes the orbital and palpebral portions of the *lachrymal gland* as usual, and states that the ducts passing from the former, to the number of three, four, or five, pass through the inferior division of the gland, on their way to the conjunctiva, and receive in this course the secretion of some of the lobules of that part of the organ; while the greater part of these lobules pour their secretion into two or three separate ducts, which pierce the conjunctiva in a line with those before mentioned. The acini of the lachrymal gland Dr. Sappey has succeeded in injecting with mercury.

The *subconjunctival glands* are from ten to twenty-five in number, conglobate; and each pours its secretion by the duct upon the surface of the membrane, where it is reflected from the lid upon the eyeball at its upper nasal aspect. The *ciliary sebaceous glands* are two to each eyelash, and quite resemble the sebaceous glands of the hairs in other parts of the body: it is these, and not the Meibomian glands, which pour out the secretion so usually noticed in ophthalmia tarsi.

The mucous secretion of the nose is poured out, according to Dr. Sappey, not from follicles, but from glands, not unlike in general arrangement to the Meibomian glands of the eyelids. They consist of grape-like bunches of acini, arranged along the excretory duct, into which they pour their secretion by short subsidiary branches. The main ducts run vertically through the mucous membrane, and open by circular orifices on its surface. In some parts of the nasal mucous membrane, as on the anterior part of the outer wall of the nostrils, they are very numerous; in others, more widely scattered. Our author has not succeeded in finding these glands in the thin membrane of the frontal and maxillary sinuses.—*Assoc. Med. and Surg. Journ.* Oct. 14, 1853.

5. *Secretion of Sugar by the Liver, and its Modification by Disease.*—M. VERNONIS, with the object of verifying and extending M. Bernard's researches, has submitted 173 livers to examination; and the following are the general results he has arrived at: 1. He believes, with Bernard, that sugar constantly exists in the human liver, independently of alimentation. He found it in a case in which no food had been taken for fifteen days. 2. *Age* appears to exert a certain amount of influence. The minimum amount was found from birth to two years of age; the maximum from twenty to fifty years of age. Sugar is found in the liver of the foetus (as early as the fourth month), but in less quantities than that of the adult. There may be sugar found in the liver of the foetus, and not in that of the mother, and *vice versa*. 3. *Sex* exerts no appreciable effect. 4. The *influence of disease* upon the secretions is indubitable. (1) The quantity of sugar is in an inverse ratio to the *duration* of the disease. (2) The *nature* of the disease which has caused death influences the secretion. In some diseases, and especially in epidemic cholera, sugar is more easily found in the liver than in the normal state; while in the majority of diseases sugar is seldom detected, as in sclerema, cerebral affections, tubercular disease, etc. (3) The *anatomical conditions of the liver* exert an influence, the quantity being lessened in proportion as the secretory structure is destroyed. The putrefactive process, however, does not prevent its detection. Gubler says none is found in the livers of syphilitic infants. 5. The opaline aspect of a decoction of the liver is usually proportionate to the amount of sugar, as determined by the potash and Trommer's tests.—*Monthly Journ. Med. Sci.* Nov. 1853, from *Archiv. Gen.* 1853.

6. *Spleen removed.*—Dr. CRISP exhibited, at the Physiological Meeting of the Medical Society of London (Nov. 14, 1853), a dog, the spleen of which was removed two years and a half since by Dr. Leared, of Finsbury-circus. The animal was in good condition, and did not appear in any way to have suffered from the loss of the organ. The blood, which was exhibited under the microscope, presented no abnormal appearance.—*Med. Times and Gaz.* Nov. 19, 1853.

ORGANIC CHEMISTRY.

7. *Crystallization of the Blood.*—A new and very interesting subject has lately been more formally brought before the profession; we refer to the fact of the production from the blood, in certain circumstances, of red "albuminous crystals," which though formed of animal matter, and sometimes, in all probability, during life, have yet forms as regular as any inorganic crystals. An excellent epitome of the facts bearing upon this matter has been published in the *Medico-Chirurgical Review* for October, from which we select as much as appears calculated to be interesting to the majority of our readers.

It has been hitherto held to be the rule, that crystallization is peculiarly a property of inorganic chemistry, and that crystalline forms are met with in the animal economy only when the material giving rise to them has lost all claim to be considered as an integral part of the living tissues. The discovery of the crystallizing power of the albuminous elements of red blood (*hamatoidin* of Virchow) has, however, made it probable that there are exceptions to this general law.

Various authors, as Sir E. Home, Scherer, etc., had described reddish crystals in blood which had been effused into tissues or organs; but Virchow was the first who paid particular attention to their actual nature, as different from saline or earthy crystals. He considers that the formation of these red crystals is the terminal step of the transformation of the colouring matter of the blood, which, first diffused, passes into the granular, then into the crystalline form; the crystals being yellowish or red, of a rhomboidal form, occasionally as large as the ordinary triple phosphate crystals in the urine, and forming spontaneously in extravasated blood, in the course of from a fortnight to three weeks after its escape from the vessels. Virchow concludes that the crystallizing process may take place—1, in the cells; 2, in amorphous protein substances (in both cases from diffused colouring matter); or 3, from agglomerated and subsequently metamorphosed blood-corpuscles; that the crystallizing power is inherent in the albuminous matter or protein; and that the colouring matter in the crystals bears no other relation to them than the metallic colours impregnating its crystals do to quartz. Reichert comes to similar conclusions: that the crystals are albuminous, and that the colouring matter is not an essential feature. Kölliker has advanced another step in this investigation, having detected the crystals *in the interior of unbroken blood-corpuscles*. In the blood of a dog's liver, he found a great number of blood-globules, containing from one to five rodlets of a dark yellow colour; and, in unchanged corpuscles from the splenie blood, the gradual formation of one or two of the crystals could be followed. Dr. Funke introduces the matter under yet a new aspect; he has succeeded in forming the crystals from the blood. If we add water to a drop of blood spread out upon the object-glass of the microscope, when the drop has just begun to dry up, the edges of the heaps of blood-corpuscles are seen to undergo a sudden change. A few corpuscles disappear, others receive dark thick edges, become angular and elongated, and are extended into small, well-defined rodlets. In this manner, an enormous quantity of crystal embryos are formed, which are too small to enable us to determine their shape; they rapidly extend more and more lengthways, the entire field of vision being gradually covered with a dense network of acicular crystals crossing one another in every direction, other crystals presenting the form of rhombic plates.

The coloured rhomboidal crystals, however, as originally described by Virchow, do not appear to be capable of being artificially formed.

Such, we think, is a correct, though brief statement of the principal facts on this very interesting subject.

On referring to the drawings of some of the principal forms which we have already described, we think no one can fail to be struck with their great resemblance to the various crystalline forms found in the urine, uric acid, oxalate of lime, triple phosphate, nay, even cystine. Had we been shown the drawings

without being told of their origin, we should at once have set them down as illustrations of the crystalline urinary deposits.—*Assoc. Med. Journ.* Nov. 18, 1853.

8. *Milk, and its Constituents.*—This secretion has not met with that amount of attention, lately, that its importance, and the means for investigation now at the command of the physiological chemist, would seem to invite. Before noting, however, what has recently been done in this division of organic chemistry, it may not be amiss to detail a few of the accepted facts respecting this liquid, since these may lead to a readier comprehension of what will follow.

First, then, as to colostrum, and the distinction between it and milk; in colostrum, there is not merely an increase in the amount of the saline constituents to twice or thrice of that existing in healthy milk, nor a general augmentation of the solid constituents only, in the ratio of about $17\frac{1}{4}$ to 11, and which is, according to Simon, principally due to the increased quantity of sugar, although this point is not absolutely determined; but the difference mainly depends on the presence of granular masses, termed *colostrum corpuscles*, which are invariably present in the colostrum, but disappear, as a rule, in three or four days after delivery, being apt to reappear on the supervention of any acute disease. These colostrum corpuscles are much larger than the true fatty milk globules, and consist of small fat globules imbedded in an albuminous substance; whilst, as they exist in larger quantity in the colostrum, than the milk globules do in healthy milk, the former secretion is really richer, than milk is, in fat.

In healthy milk the amount of butter varies according to circumstances, but appears to average nearly $3\frac{1}{2}$ per cent.; this butter is considered to be richer in olein than the butter from cows' milk. The valuable observation of Simon may be remembered by some, that the butter undergoes no appreciable change in amount during suckling, but that the milk-sugar diminishes with the growth of the child; whilst the proportion both of the casein and the saline constituents are augmented. L'Heritier formerly detailed some singular analyses of the milk from two women, both twenty-two years old, one dark, the other fair, from which it appears that not only the quantity of butter, but of almost all the other constituents also, was nearly doubled in the milk of the *brunette*; this assertion is well worthy of a farther investigation to support or confute so singular a statement. In ordinary cases, milk contains about $3\frac{1}{2}$ per cent. of casein, and 4 to 6 per cent. of sugar; one peculiarity about the casein being, that it is less readily coagulated by acids than that from cows' milk. The above remarks apply especially to human milk.

The existence of albumen, or an analogous form of free casein coagulable by heat, in healthy milk, is disputed by M. LIEBERKUHN, who has recently investigated this subject as well as the relations of casein and albumen to potash. He finds that when albuminate of potash is gently evaporated on a water-bath, it gradually decomposes into potash, and albumen in an insoluble state; and that the corresponding potash compound from milk, by a similar treatment, undergoes a similar decomposition, separating into alkali and an insoluble skin of casein. With perfectly fresh milk the results are precisely similar, the coagulum being insoluble in boiling water. The substance noticed by Scherer, existing in milk, susceptible of coagulation and having an albuminous reaction, is not only obtained by adding excess of lactic or acetic acids to milk, and heating the filtrate, but also from the filtered liquor of boiled milk similarly acidified. Boiled milk, when evaporated, as well as fresh milk, when concentrated at a temperature of 104° F., and the residuum treated with cold water in both cases, yields a liquid which coagulates on boiling. From these conditions, M. Lieberkuhn contends that milk contains neither albumen, nor free casein analogous to it, coagulable by heat. This chemist farther observes that the nitrogenous substance contained in fresh milk exists under three distinct forms: one corresponding to albuminate of potash, another coagulable by heat, and a third separable from the serum by filtration. He also points to the probable identity

of albumen and casein, but abstains from the avowal of any decided opinion on this point.

In addition to the chlorides of sodium and potassium, the alkaline and earthy phosphates (bone earth), and the alkali combined with the casein in milk, Dr. G. Wilson, pursuing the track of some experiments of Mr. Middleton on the constant presence of fluorine in bones, recognized, some two or three years since, the existence of this element in cows' milk, cheese, and whey, existing probably as fluoride of calcium. We do not *know* that it is present in human milk, nor are we aware that experiment has yet shown that this, although most probable, is an actual and ascertained fact. Fibrin, haematin, urea, etc., have been recognized in milk; but these are the products of disease, and cannot be reckoned among its constituents.—*Asso. Med. Journ.* Oct. 28, 1853.

9. Infusoria in Woman's Milk. By Dr. VOGEL.—No general directions can be given as to whether a woman may suckle or not. In every case the question must be determined by an examination of the milk; and here the microscope proves eminently useful. The author found in that milk which produced sickness in the child, and destroyed the health of the mother after prolonged lactation, immediately after its removal from the breast, infusoria similar to those found in the incrustations upon the teeth (*vibrio bacillus*.) Such vibrios are found especially in women who menstruate or suffer from hemorrhages during this period, the good or bad aspect giving no important indication. The milk has often a fine thick white colour, or is of paler hue; its consistence may be either thick or watery; its reaction is often alkaline, but generally neutral. Under the microscope it exhibits, according to its richness, sometimes but few, at other times many, milk and cream corpuscles; these differ from the corpuscles of healthy milk by their pale yellow colour, their want of metallic lustre, and their speedy decomposition. As regards the infusoria, they are little rod-shaped bodies, dark in the middle, surrounded by a lighter line, but exhibiting neither head nor tail under a magnifying power of 600 diameters; there are, however, feet in great number and of considerable length. The movement of these animalcules was swimming, and occasionally it was very active. Forward movement was worm-like, and an annular structure of four rings was observed. Mostly they twist, screw-like, upon their axes. When they swim in a circle, they always move from right to left. The length is $\frac{1}{10}$ mmtr., their breadth four times less. They are best seen when the milk is diluted with water. In ammonia, diluted acids (even the lactic), they die immediately.

Children fed upon milk containing these infusoria, become sooner or later attacked by diarrhoea, and the evacuations are of a green colour. This condition disappears as soon as healthy cow's milk is substituted. The author believes that this effect does not proceed from the infusoria as such, but from the same cause which produces the infusoria, namely, a process of fermentation in the milk itself. The ferment is, according to him, the congested and increased heat in the breasts, connected with the general excitement of the sexual system.

But a fermentation, as Jul. Clarus observes, cannot be present, because the author always found the milk alkaline or neutral, and never sour. Were there fermentation, the evolution of lactic acid would, upon the author's own showing, have immediately destroyed the infusoria.—*Med. Times and Gaz.* Nov. 19, 1853, from *Schmidt's Jahrb.* 1853.

10. Colour of the Urine.—“I imagine,” says Prof. J. VOGEL, of Giessen, “that the colouring matter of the urine is formed by the colouring matter of the blood, and that it consists of a decomposition of blood-disks. If this be the case, and it be premised that the decomposed blood-disks do not leave the body through any other channel than the urinary, it follows that we possess, in the colour of the urine, a ready means of ascertaining, in a given time, whether a large or a small quantity of blood-disks are decomposed in the animal economy. In the normal condition, two to six parts of colouring matter are voided daily, and this expresses the normal loss and reproduction of blood-disks. A chlorotic patient,

or a convalescent, who voids but little colouring matter in the urine, would have but little change and reproduction of blood-disks. Every one whose urine is high coloured would require a constant supply of red blood-corpuses. The grounds upon which this hypothesis rest are the following:—

"I. In all cases of brown or brownish-black urine, where the urine is most coloured, the direct source of the colouring matter, namely, from decomposed blood-disks, can be easily traced.

"II. In all cases where there is a constant discharge of red urine with increase of the colouring matter, as in fevers, inflammation, etc., there we see, as a common result, diminution in the quantity of the blood-corpuses, and a corresponding condition of anaemia.

"III. In cases where there is noticed diminution in the production of red blood-corpuses, with probability of their very sparing disintegration, as in many (not all) cases of anaemia and chlorosis, there do we find diminution in the excretions of the colouring matter of the urine."—*Med. Times and Gaz.* Oct. 8, 1853, from *Vogel and Nasse's Archiv*.

11. *On the frequent occurrence of Indigo in Human Urine, and on its Chemical and Physiological Relations.*—A. H. HASSALL, M. D., communicated to the Royal Society an interesting paper on this subject. He was led, he stated, to the investigation by the following circumstances:—

Some three or four years since, when examining urinary deposits under the microscope, he frequently observed in the field of vision particles of a deep blue colour; so often did this occur, that he could not even then help suspecting that their presence was not accidental; however, no analysis of the blue colouring matter was made at that time, and the circumstance was in a fair way of being forgotten, until the recollection of it was revived by another occurrence. In June, 1852, a sample of urine, freely exposed to the air in an open vessel, was observed, after four or five days' exposure, gradually to change colour; the pellicle or scum which had formed upon the surface of the urine became first slate-coloured, and at length deep blue, with here and there a rusty red tint. The urine also underwent at the same time some remarkable changes; it became thick and turbid, deep brown, greenish, bluish-green, and finally of a faded yellowish-green colour; a considerable sediment was found at the bottom of the glass; this was deep brown, intermixed with a little blue colouring matter, and it had a medicinal smell resembling somewhat that of *Valerian*. In this state, without undergoing any farther material changes, the urine remained for many days. Examined with the microscope, the scum or pellicle on the surface was found to consist of vibrios, innumerable animacules, and crystals of triple phosphate, with a great many fragments and granules of a deep and bright blue colour. A second sample of the same urine was therefore procured, taking every precaution to avoid fallacy. Gradually, the same changes ensued as in the first sample, and this likewise became blue. Having thus ascertained that the changes observed were due to something contained in the urine itself, the author next proceeded to set aside in open vessels a series of urines all from the same patient, noting the alterations which occurred from day to day; these samples underwent nearly similar changes; but the quantity of blue colouring matter and brown extractive gradually diminished, until at length they were present in such small amount as to be visible only under the microscope, and at last they entirely disappeared.

The results obtained from an examination of the urine, the blue colouring matter, and the brown extractive, are then given by the author; they are as follows:—

The urine.—The urine of the second sample at the time of analysis, when shaken, had a dark greenish-brown colour; but on standing at rest for some time, the colouring matter fell to the bottom, forming bluish-green flocculi, while the supernatant fluid was of a deep wine-red colour. The bottle was set aside, corked for ten days, at the end of which time the bluish-green precipitate had entirely disappeared; but on removing the cork, and allowing free access of air for some time, the coloured deposit was again produced. This was washed with water, drenched with hydrochloric acid, and finally dried; by this means

was obtained a rich blue powder, possessing all the chemical characters and properties of indigo. The urine that was filtered off from the above precipitate was allowed to evaporate spontaneously, by which means it yielded an additional quantity of indigo, which adhered in the form of very small flakes to the sides of the dish. It also gave a rather large proportion of a deliquescent brown colouring matter, which was treated first with alcohol, and then with water. The alcohol acquired a deep brownish-red colour, and the water a dark brownish-green. Both of these solutions were evaporated at a temperature of 160° Fahr. The alcoholic solution furnished a rich brown extractive which was soluble in water, but not in dilute acids, and nitric acid did not produce that play of colours which is characteristic of bile pigment; nor did the precipitate formed with basic acetate of lead furnish a purple liquid with alcohol and free acid. A strong solution of potash dissolved the extractive, and yielded a deep blood-red fluid, which was rendered green and opalescent by boiling. These reactions show that the brown pigment was somewhat like haematin in its chemical manifestations, while the aqueous solution of the brown matter was undergoing evaporation, it gave a farther supply of indigo, which was formed most freely at the edge of the liquid. The residue was made black by concentrated sulphuric acid and deep brown by potash.

The blue colouring matter.—Of two samples of this in a dry state, mixed with a large quantity of earthy phosphates, vibriones, mucus, and epithelium, one gave a dark-brown solution with concentrated sulphuric acid, and the other a dirty blue. Both of these solutions were decomposed by water, furnishing in the former case a dark brown deposit, and in the latter a dirty green. In most of their other reactions, however, they presented the characters of indigo; and it is especially deserving of notice, that they were reduced by lime and sugar, giving a liquid from which hydrochloric acid threw down a greenish-blue precipitate. The cause of concentrated sulphuric acid giving with one of these samples a brown solution, and with the other only a dirty blue, was, the author considers, mainly owing to the large quantity of animal matter with which the specimens were contaminated; the acid, from its charring effect on this, would produce a brown or blackish solution, thus obscuring the colour of the solution of indigo.

The brown extractive.—The brown extractive yielded nearly the same results as on its first analysis, and the aqueous solution furnished a few blue flocculi. A portion of the alcoholic extract was heated with liq. potassæ for the purpose of ascertaining whether it contained leucine; and the product, on being treated with hydrochloric acid, gave off a powerful odour, which was somewhat like *valerianic acid*; but the result was too doubtful to be of much value. The author had already referred to the peculiar smell of *valerian* emitted by the extractive of more than one of the samples. He considers that the clearest and most positive evidence was thus obtained that the blue colouring matter in this case was indigo. It was not very long after the occurrence of the first case of blue urine that numerous other instances fell under the author's observation. The urines of all these cases underwent very nearly the same changes as in the first; in some, the quantity of blue colouring matter was found very considerable; in others, less; and in the third class of cases the microscope was necessary for its discovery. In nearly all these cases the blue colouring matter was submitted to analysis, and ascertained on the clearest evidence, to be indigo. The author in the next place considers the question of the source and origin of indigo in the urine. It appeared that in the cases related by the author, coloured indigo was not present in urine when first voided, but that it was gradually formed some time afterwards by a process of oxidation on exposure to the air, being in most of the cases probably derived from the brown extractive, which in its chemical manifestations so closely resembles haematin. The author contrasts *cyanourine* with the indigo detected in urine. He observes that the most distinctive tests laid down for cyanourine are its solubility in boiling alcohol, and the action of sulphuric acid upon it, which give a reddish-brown solution; and states he had ascertained that these tests are not to be relied upon, since indigo, when contaminated (as in the urine it frequently is) with a large quantity of animal matter, vibriones, &c., gives a reddish-brown solution with con-

centrated sulphuric acid, from the charring of the animal matter, and in many cases forms a bright blue solution with boiling absolute alcohol; hence, he could not help suspecting that cyanourine and indigo are very closely connected with each other, if they be not identical. He observes, it is at least singular, that while so many cases of indigo were met with, not a single instance of cyanourine presented itself. He also contrasts indigo with apoglaucin, and remarks that this is acknowledged by Heller himself to be nothing more than cyanourine mixed with urrhodin. Taking, then, into consideration the whole of the facts described in this communication, the following conclusions are deduced:—

1. That blue indigo is frequently formed in human urine, the quantity being subject to the greatest variation; in some cases it is so considerable as to impart a deep green, or bluish-green colour to the whole urine; a pellicle of nearly pure indigo also extending over the entire surface of the liquid; while in others it is so small that it can only be detected by means of the microscope.

2. That for the formation of this indigo, it is in general necessary that the urine should be exposed to the air for some days in an open vessel, oxygen being absorbed and the blue indigo developed. Whatever facilitates, therefore, oxygenation, as free exposure to light and air, warmth and sunshine, hastens the appearance of the blue indigo; hence, in summer, the changes described take place much more quickly than in winter; on the contrary, these changes are retarded and even stayed by exclusion of the atmosphere. Blue indigo may even be deprived of its colour and reformed, alternately, according as air is excluded or admitted to urine containing it. From some of the cases recorded, it would appear, however, that blue indigo is occasionally formed in the system, and is voided as such in the urine.

3. That there is usually found with the blue indigo, where the amount of this is considerable, a brown extractive, sometimes in large quantity, the aqueous solution of which, by exposure to air, yields a farther supply of coloured indigo, and which closely resembles haematin in its chemical manifestations and elementary composition. There is therefore great reason for believing that, in the majority of the cases here recorded, the blue indigo was derived from altered haematin, although it is at the same time probable that in some cases it is formed from modified urine pigment, which is itself supposed to be a modification of haematin. Between the greater number of the animal colouring matters there is the closest relationship in chemical composition, so that the transformation of the one into the other would appear to be both easy and natural.

4. That the urines in which the coloured indigo occurs in the largest quantity are usually of a pale straw colour, readily becoming turbid, alkaline, and of low specific gravity. Small quantities of indigo are, however, frequently found in urines possessing characters the very reverse, that is, in such as are high-coloured, acid, and of high specific gravity; but, as a rule, in these urines the blue pigment is usually absent.

5. That as coloured indigo does not occur in healthy urine, and since, where the amount of this is at all considerable, it is accompanied with strongly-marked symptoms of deranged health, the formation of blue indigo in urine must be regarded as a strictly pathological phenomenon, apparently associated rather with some general morbid condition, than essentially with disease of any one organ; although there is reason for believing that the blue deposit is met with very frequently in Bright's disease, and in affections of the organs of respiration, it should, however, be remarked that none of the worst cases of indigo in the urine which the author met with were cases of Bright's disease.

The paper was illustrated by drawings, and a specimen of the indigo, as deposited from urine, exhibited.

MATERIA MEDICA AND PHARMACY.

12. *Rules for the Administration of Chloroform.* By M. BAUDENS.

1. Never go, intentionally, beyond the limit of cutaneous insensibility.

2. The management of chloroform may be divided into three stages—before, during, and after the inhalations.

3. *Before:* *Counter-indications.*—Study the patient's constitution; find out whether there exists organic lesions of the heart or lungs; these would be a counter-indication; as are also asthma, aneurism, phthisis, chlorosis, anaemia, chorea, &c., and predisposition to cerebral congestion.

4. The patient's mind should be perfectly calm, and the medical attendant should speak of chloroform as a boon, when carefully administered.

5. The patient should be wishing for anaesthesia, and have full confidence in his medical adviser. If he should feel any apprehension or gloomy forebodings, chloroform should be steadfastly refused.

6. Patients have in all times died from the fear or pain of operations; but the influence of *fear* is now no longer taken into account, and chloroform accused of all the mischief.

7. Chloroform must never be given but for operations of a certain importance, and patients should be fasting.

8. Attention should be paid to the debility which naturally follows serious operations and considerable loss of blood, for the organism thus loses its power of resisting the influence of anaesthetic agents.

9. The operating-room should be of good dimensions, easy of ventilation, and every article necessary in case of danger should be at hand.

10. *During the Inhalation.*—Chloroform should be administered, in hospitals, by persons specially appointed for the purpose; and in town, by practitioners who make it their exclusive occupation.

11. The quantity of chloroform given should be carefully measured, about fifteen minimis being taken at once.

12. The length of time during which the patient is inhaling should be counted upon the watch, as also the pulse and the number of respirations. Note should be taken of the force and frequency of the pulsations of the heart; if the latter fall *below sixty*, the inhalation should be stopped.

13. The patient should be in the recumbent position, the head slightly raised by a pillow; and should be given in doses of fifteen minimis, the time between them being made gradually shorter.

14. The handkerchief should be first held at a little distance, and gradually brought nearer the face, the patient being spoken to in a kind and encouraging manner.

15. The latter should be frequently asked, whilst he is being pinched, what is done to him; and when he begins to answer with ill-humour, you pinch him, he is on the point of losing the faculty of sensation.

16. As soon as he answers no more, feeling is abolished; the handkerchief should immediately be taken away, and the operation begun, for we should never wait until muscular resolution is complete.

17. Excitement, which often marks the first degree, is a mark that the handkerchief should be *removed*, far from being kept on, as is generally practised.

18. The time has now come to watch the heart and the respiration. On the slightest retardation, and if the symptoms of anaesthesia go on, or are even increased, means should be immediately taken to bring back the insensibility to the first degree.

19. When spasms of the larynx or much cough occur, if foam come to the mouth, if the pulse falls, if breathing becomes embarrassed, if there appears any mark of syncope or cerebral congestion, the inhalations should at once cease.

20. Slight struggling may be resisted, but violent excitement, and the excla-

mation of "I am choking," should be followed by the immediate removal of the handkerchief.

21. For long operations the inhalations should be intermittent, and the chloroform may be resumed as soon as the patient begins to sigh or move about. Anæsthesia has in this manner been kept up for one hour.—*Lancet*, Oct. 29, 1853.

13. *New Method of administering Sulphate of Quinia.*—In the *Révue Médico-Chirurgicale*, for September, 1853, we find a notice of an article by Dr. BERTELLA, on a new method of administering sulphate of quinia. This plan consists in combining with the quinia an equal quantity of tartaric acid, which has the effect of not decomposing the salt, but of rendering it more soluble, and of causing absorption to take place more readily. He gives at a dose three grains of disulphate of quinia, and three of tartaric acid. The dose at the commencement is from six to twelve grains of each.—*Assoc. Med. Journ.* Nov. 25, 1853.

14. *Iodide of Zinc.*—During the last six months an extended series of trials of a new drug, the iodide of zinc, has been made in Guy's Hospital, on patients under the charge of Dr. Barlow. The salt has been prepared, we believe, to Dr. Barlow's direction, by Messrs. Davenport, and is given in the form of a syrup, of which the dose is the same as of the iodide of iron. Dr. Barlow considers it especially indicated in cases in which the zinc alone might be too stimulating, and in those in which it is desirable to have the effects of both the ingredients. Chorea, struma, cachexia, and some forms of hysteria, form the chief in which it has been tried. In one case of severe strumous superficial lupus, it has been continued for many months and in full doses, with great apparent benefit. It is doubtful whether the cases of chorea have improved more rapidly than they might have been expected to do under the usual treatment by the sulphate.—*Med. Times and Gaz.* Nov. 12, 1853.

15. *Ethereal Solution of Iodine.*—Both from its more rapid evaporation and its higher degree of concentration, the ethereal solution of iodine is a much more powerful counter-irritant than the spirituous ones. A young man was recently in the London Hospital, under the care of Mr. Curling, on account of impeded respiration from a bronchocele. The tumour was not a very hard one, nor yet unusually large, but it extended equally to both sides, and involved also the isthmus. That the trachea was compressed was evident from the dusky countenance, stridulous respiration, dyspnoea, aphonia, and laryngeal ring with the cough. It was feared that tracheotomy might become necessary, as the common solutions of iodine, conjoined with its internal use, had failed to produce any mitigation of symptoms. Mr. Curling now ordered the ethereal solution to be applied; it produced extreme pain and irritation; but a few days afterwards the tumour was perceptibly softer, the man could speak sufficiently loud to be heard across the ward, and the air entered freely into every part of his chest. Mr. Curling has also employed this preparation with great benefit as a counter-irritant in several cases of inflamed joints. We noticed in our reports some weeks ago, from the City Hospital for Diseases of the Chest, the very successful employment of a strong alcoholic solution of iodine applied to the external throat in cases of chronic or catarrhal laryngitis, with aphonia. Since then, the remedy has been tried in numerous other instances, with like favourable results; and although, of course, not always curative, it certainly appears to possess great advantages over all other modes of counter-irritation.—*Med. Times and Gaz.* Nov. 12, 1853.

16. *Aconite as a Local Anodyne.*—The comparative value of several of our local anæsthetics was well exhibited in a case recently under the care of Mr. Curling, in the London Hospital. The patient, a woman of 57, had a patch of dry gangrene on the outer side of her left foot. Its slow increase was attended with such intense pain, that for several weeks she scarcely slept at all. To obtain relief, chloroform, on lint beneath oil-silk, belladonna lotion, and the solution of opium, were severally applied to the part, with, however, but very slight and

temporary benefit. A liniment, consisting of equal parts of the soap liniment and of tincture of aconite, was then ordered to be used in the same manner; and so great was its efficiency, that under its influence the poor woman was frequently able to obtain a very fair night's rest. This case is only one among many in which we have seen proved the powers of aconite as a local anodyne.—*Med. Times and Gaz.* Nov. 12, 1853.

17. *Thlaspi Bursa Pastoris in Hemorrhage.* By Dr. HANNON.—The cruciferæ arrange themselves, according to their therapeutical constituents, into two groups: 1st. Those which contain a sharp essential oil, and are, on that account, used as an irritant to the skin, such as mustard, &c. 2d. Into those which contain less essential oil, but, on the other hand, much astringent and bitter matter, and which are, therefore, useful in assisting digestion and improving the state of the blood. The number of the latter is very great. The whole coast of Northern Europe bears the *cochlearia officinalis*, a most useful anti-scorbutic. The whole surface of Europe produces the *nasturtium officinale*, *cardamine pratensis* and *anara*, and *lepidium sativum* (garden-cress). On the coast of America and the Antilles is found *kakile Americana*, another anti-scorbutic of great value; the Laplanders, the Kamtschadalen, and the Greenlanders, possess their *nasturtium palustre* and *sylvestre*.

All these plants possess an essential oil, containing sulphur, a bitter resin, tannic acid, salts of soda, potash, lime, and iron, with a nitrogenous substance, which, in decomposition, causes the evolution of ammonia.

The *thlaspi bursa pastoris* was used in the earliest periods, according to Dioscorides, as a remedy in haemoptysis; in later times, it was recommended by Simon Pauli; and recently it has been approved by Lejeune, Mérat, and Delens, for the same disease, and by Dubois, for haematuria and haemoptysis. René Van Oye and Rademacher confirm its utility.

The author found it useful in many diseases, and especially in those hemorrhages in which the fibrin of the blood is diminished. In certain subjects, the flow of blood constitutes the only disease; it occurs spontaneously, and without fever. The patients have, during the first attack, the aspect of good health, a fine rosy skin, and are well nourished; but upon closer inspection there is remarked a want of energy in the organic functions, laboured and slow movements, and general apathy. By frequent recurrence of the hemorrhages, there ensues pallor of the tissues, well-pronounced anaemia; the nervous system seems over excited. Hence follow pains in the joints; the least pressure is followed by ecchymosis, in the form either of petechiae or purpura; the least wound bleeds obstinately, and requires the repeated application of astringents; coagulation of the blood ensues with difficulty. In women, the catamenia are frequent, profuse, and exhausting. The blood appears serous and pale; the clot is soft, small, and never buffered. The skin perspires easily and abundantly; every breath of air calls forth neuralgia. The urine is pale and copious; the evacuation from the rectum, fluid; and hydropic effusions, such as oedema of the foot, occur readily. The *thlaspi bursa pastoris*, administered for a considerable time, works in these cases a change in the constitution of the blood, especially when aided by the influence of good air and properly regulated diet. The best formulæ are the succus *thlaspi*, prepared cold, and of bitter taste, three to six drachms a day. The extractum *thlaspi*, the fresh expressed juice, reduced by evaporation to the consistence of an extract, one to two drachms a day.—*Med. Times and Gaz.* Oct. 22, 1853, from *Presse Méd.* 1853.

MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

18. *On the Condition of the Gray Substance of the Brain after excessive Mental Exertion.* By Dr. ALBERS.—In allusion to a statement made in the *Psychological Journal*, by Dr. F. Winslow, in an article entitled “The Overworked Mind,” that the gray substance undergoes softening as a consequence of excessive mental exertion, Albers states that he has dissected the brains of several persons, who have for many years undergone great mental labour, and that in all of these he has found the cerebral substance unusually firm, the gray substance as well as the convolutions being remarkably developed. In several of these instances a settled melancholia had taken possession of the mind during the later period of life. He believes, therefore, that, to produce a softened condition, some additional influence beyond mere over-exertion is required. Softening of the cortical substance is a frequent consequence of apoplexy of the convolutions, which gives rise to numerous small depositions of blood, especially at the convex portions of the brain, being accompanied also by an atheromatous degeneration of the small arteries. In this latter condition the quantity of fat is not only accumulated in the arteries, but also in the cerebral substance itself. This degeneration is oftenest seen in gouty subjects, in whom it certainly is not attributable to excess of mental exertion. Several such cases, too, have been met with in rustic labourers. *Brit. and For. Med.-Chirurg. Review*, Oct. 1853, from *Froriep's Tagsberichte*, No. 696.

19. *Pathology and Diagnosis of Cerebral Diseases.*—Dr. SEMPLE read a paper on this subject before the Medical Society of London, Nov. 14, 1853. He commenced by observing, that the present paper might be considered as a continuation of a former communication to the Society on the same subject. He did not intend to present an elaborate essay on cerebral pathology, nor to avail himself of the opinions of authors who had written upon the subject, but merely to present the results of his own experience and observations; particularly selecting those points which were the most obscure, or on which a difference of opinion still existed. It was often a matter almost of impossibility to connect the symptoms of cerebral disease observed during life with the appearances found after death; but, as the term “pathology” included the morbid phenomena of the living structure, as well as the lesions traced after death by the scalpel, it was necessary to consider them in their relations to each other, however obscure the relationship might appear. In some cases, the relation of cause and effect was sufficiently manifest; and Dr. Semple drew attention, in the first place, to diseases of the osseous structure as causes of cerebral disorders. In one case which had come under his notice, and which he had observed for about ten years, the patient had been subject to continual attacks of epilepsy, which had resisted all treatment, and which had at last proved fatal. On a *post-mortem* examination, it was found that the internal table of the skull was thickened, and all the prominent bony processes in the interior of the cranium were much increased in thickness and asperity, as the crista galli, the clinoid processes, the ridges on the petrous portion of the temporal bone, and on the occipital bone. In another case, he attended a patient who suffered from constant pain and heaviness at the anterior and inferior part of the forehead, and who had occasionally had epileptic fits. These inconveniences became so troublesome by their long continuance, that the sufferer was obliged to abandon his business, and life became a burden to him. Acting upon the supposition that this was a case of thickening of the internal table of the skull, mercury was given to salivation, and the iodide of potassium was administered in large and repeated doses for a very long period, and under this treatment the patient eventually recovered, and is now in active occupation. In a third case, a man presented a manifest thickening of the root of the nasal bones; and notwithstanding the vigorous employment of the means pursued in the

last case, he became comatose and died; and on a *post-mortem* examination, there was found to be thickening of the bones in the region indicated, and an abscess in the brain corresponding in situation to the osseous lesion. Another circumstance which Dr. Semple had occasionally observed in cerebral diseases was a want of symmetry in the two sides of the cranium; and although he was not yet prepared to prove that this was a common cause of cerebral disease, yet he thought it worthy of attention, and believed that other cases might be found in which similar deviations from symmetry might prove to be associated with disordered cerebral manifestations. The morbid anatomy of the cerebral membranes is a subject involved in great obscurity, because the most violent symptoms during life often leave very few traces observable after death, and, on the other hand, appearances usually described as morbid are sometimes wholly unconnected with any cerebral symptoms during life. In order to arrive at correct views on this subject, however negative the results might be, the author was in the habit of examining the brains of all cases, whenever it was practicable, whether there had been symptoms of cerebral disorder during life or not, and the conclusion at which he had arrived by these investigations was, that much error and misapprehension existed among authors on this branch of pathology. Such terms as "more or less opacity of the arachnoid," "effusions on its surface," "effusions beneath its surface," and other similar vague expressions, were by all means to be deprecated, because it was doubtful whether these appearances were really morbid at all in many instances, inasmuch as they are often found in cases where no cerebral disease has existed. The disease called acute hydrocephalus in children, was a well-marked instance of meningeal inflammation, and the results of such disease were apparent in the effusion of coagulable lymph between the opposed layers of the arachnoid, and of copious serous deposit upon the surface and in the cavities of the brain; but in adults, the effusion of coagulable lymph was comparatively rare, and the only appearances observed were vascularity of the membranes and effusion of lymph beneath the arachnoid. Dr. Semple inclined to the view of Rokitansky, that inflammation of the pia mater is the usual form of meningeal disease, the apparent vascularity of the arachnoid membrane being due to the injection of the vessels of the pia mater seen through the transparent serous structure lying above it. Four cases were then related, in two of which the author considered that meningeal inflammation undoubtedly existed, and yet after death nothing was found beyond a slight effusion of lymph beneath the arachnoid, and in the two others no cerebral disease had existed during life, and yet the *post-mortem* examinations revealed thickening and vascularity of the arachnoid, accompanied by copious effusion. The diagnosis of cerebral diseases is a point of great difficulty, but of immense importance, and upon a correct judgment in this particular the life or death of a patient often depends. Insensibility and coma depend upon various causes, such as hysteria, poisoning, drunkenness, apoplexy; and all these conditions require very different and often opposite treatment. Again, delirium is produced by opposite states of the brain—by congestion and inflammation, on the one hand; by exhaustion of nervous energy on the other; and some well-marked cerebral disorders are produced by diseases in remote organs, and without any disease of the brain whatever. Two cases of what might be called pseudo-cephalic disease were then related, in one of which the most violent and long-continued convulsions were caused by the eccentric irritation of teething and intestinal derangement; in the other, an infant a fortnight old, the convulsions were apparently due to previous intra-uterine influences, and to the weak and nervous condition of the mother. In such cases, it was exceedingly important that a correct diagnosis should be made; for, although convulsions in infants were always dangerous, and a prognosis must be given with great caution, yet the gravity of the issue was most materially influenced by the nature of the existing disease. The convulsions springing from cerebral inflammation must be promptly treated by leeching, calomel, purgatives, cold to the head, warmth to the extremities; but all these remedies are utterly improper in those forms of convulsive attacks which originate from teething, intestinal derangement, renal obstructions, and other forms of eccentric disease.

The chief point in the discussion was the degree of difficulty attending the diagnosis of cerebral diseases.

Dr. Fuller was of opinion that in true meningitis there is always great congestion, with effusion of lymph, pus, or serum, and that in the absence of these products, we could not infer the existence of the disease from the symptoms. In poisoned blood from disease of the kidney, or from the presence of a narcotic poison, as belladonna, as also in certain rheumatic affections, he had observed great cerebral excitement, with injection of the conjunctiva—that is, all the mere symptoms of meningitis—but these were not cases of true inflammation. Moreover, the opacity of the arachnoid which arises from an effusion underneath the membrane, is not an evidence of inflammation. He then referred to the probable cause of the greater violence of the cerebral irritation in meningitis than in cerebritis, and believed it to be the rapidity with which the various disturbances take place in meningitis. He had observed cases in which very great injury had been done to the substance of the brain without any violent symptoms having been induced, and this he attributed to the slowness with which the injury had proceeded. Thus, in the case of a medical friend, who for many years had suffered only from symptoms resembling tic, and from slight epileptic attacks, he had found a pint of serum effused within the skull, with the circulation through the right vertebral artery impeded by the pressure of a scrofulous tumour, and the left vertebral artery nearly obliterated. He agreed with the author in his remarks upon disease of the calvarium, and instanced the case of a young lady who had suffered for many years from intense headache and epileptic fits, and who could not bear any jolting exercise, in whom a spiculum of bone, two inches in length, was found projecting into the brain.

Dr. Theophilus Thompson considered that thickening of the calvarium was not a likely cause of meningitis, for he had observed that thick-skulled people were dull, and not prone to inflammation; but if it were a cause, he did not think that iodide of potassium would remove it. He believed that affections of the dura mater are among the most obscure of cerebral diseases, while inflammation of the other membranes of the brain is at present well understood. He thought that Mr. Rainey's statement as to the ganglionic character of the arachnoid, would clearly account for the great violence of the symptoms met with in arachnitis, and that it is the locality affected, and not the slowness of the progress, which renders the symptoms of cerebritis less prominent.

Dr. Druitt highly eulogized the paper, and inquired if the author had been accustomed to connect rheumatism with disease of the skull. He (Dr. Druitt) had given colchicum and calomel with great advantage in such cases, and believed those remedies to be more beneficial than iodide of potassium. He considered that thickening of the skull is rarely, if ever, a primary disease; as also meningitis, when not preceded by external injury. If in any case he should observe great cerebral excitement, with congestion of the eye, he should consider the case to be one of poisoned blood, and not of true idiopathic meningitis.

Dr. Sibson believed it to be impossible to arrange the diagnostic symptoms of each cerebral disease in clearly-defined categories, for he had learned from practice, and an analysis of almost all the recorded cases, that every kind of symptom has been found in every variety of cerebral disease. A few cases of epilepsy have thickening of the calvarium, but it is only a small minority; and, in general, he believed it to be impossible to guess even at the existence of such an obscure morbid condition. He also considered that inflammations of the arachnoid, and of the pia mater, could not be separated, just as it is impossible to state that the sub-pleural cellular tissue is not involved in a case of pleuritis. Farther, in such cases, the surface of the brain is always implicated, and it is from this cause alone that the symptoms become more energetic. He regarded the effusion of lymph in a fatal case of meningitis, as essential to the disease, and had seen cases in which this effusion had extended greatly, and yet only a slight stupor had indicated the presence of inflammation.—*Med. Times and Gaz.* Nov. 16, 1853.

20. *Simple Ventricular Meningitis.* By W. HUGHES WILLSHIRE, M. D.—Simple acute meningitis is, under any of its forms, an unfrequent disease in childhood. At this period, the meningeal inflammation is usually of the granular or tuberculous character, or, at any rate, is subservient to the sway of the important diathetic disorder, scrofula. But if simple acute meningitis of the periphery alone, or combined with that of the base or of the ventricles is uncommon, that limited to the lining membrane of the latter is excessively rare. So rare, indeed, is it, that MM. Rilliet and Barthez have been unable to meet with a single case on record. The former, however, has been witness to one, terminating in ventricular effusion, loss of intelligence, idiocy, and death. The fatal event did not occur till the end of the fourth month, the disease assuming somewhat of a chronic character. The case seems more particularly interesting, as tending to support the views of those who believe chronic internal hydrocephalus to be due to inflammation of the ventricular lining membrane. The following instance occurring to ourselves, differs in some important points from M. Rilliet's, and appears more fully to demand the qualification of *acute* to the terms ventricular meningitis.

C. W., a boy five years old, was brought to the Infirmary in the month of January. His parents live near the Institution. The child was said to have been ill for more than a week, and to have been an out-patient at the Charing-Cross Hospital. The prescription-paper of the latter showed that antimonials and salines had been given. The patient was very thin, pale, and weak, lying in his mother's lap, scarcely able to speak, though complaining somewhat of his head. There was thirst, loss of appetite, coated and rather dry tongue, but no costiveness. On a review of the whole symptoms, and being impressed by the recollection of an epidemic then prevalent in the locality, I came to the conclusion that the child was suffering from chronic remittent fever of a low type. Still, I was not quite satisfied with the diagnosis, as there appeared something not easily to be described in the case, different from the patients I was then attending. The epidemic then prevalent absolutely demanded bark and ammonia for its satisfactory treatment, and these agents were here given. Under their employment, a great change for the better appeared to ensue, and progressed for an entire week. I watched the case with much interest, being suspicious about my diagnosis, but at the end of the week I entered in my notebook that I thought my patient would do well, and that "my diagnosis is right." The next day a change appeared. The patient became worse, and complained bitterly of his head. There was no costiveness, rather the reverse, but there was some vomiting. The ammonia and bark were stopped, leeches applied to the temples, and blisters behind the ears, antimonials, salines, &c., given. No relief from any treatment was obtained, the child became still worse, semi-conscious, the pupils were dilated, the head thrown back, and the limbs became slightly stiffened. With slight alternations, these symptoms continued for four days, when the limbs became more relaxed, and every now and then affected with a sort of slow shaking, or trembling movement. The remission called the "lightning before death," appeared, then, as was expected; the symptoms became worse, the limbs stiffer, the head thrown back, the hands clenched, and the patient died at the end of the second week since he was first seen at the Infirmary.

The case had been very obscure to us; there had been no definite convulsions, no screaming, no "cerebral respiration," though the latter was frequent, no constipation, and but little vomiting. The constant dorsal decubitus, the peculiar opisthotonos symptoms, and the pyrexial prodromi were the more marked positive phenomena—of course the lesion was cerebral, but that was saying little; there was probably effusion, that was not saying much more. It might be the base, or the hemispheres, or the ventricles, which were more particularly involved, or it might be the meninges alone which were affected, or they might be intact, and true tubercle exist of the cerebellum medulla, or brain proper. Farther, the inflammatory element, if present, might be either of the simple or granular character, the fever might be symptomatic of the cerebral mischief, or reactional, or be the primary disorder, and the affection of the nervous centre be secondary to it.

P. M.—Skull well ossified, convolutions of brain close-pressed, the membranes intensely congested. No milky effusion along the course of the vessels, no exudation of any kind beneath the arachnoid or upon the hemispheres. No granules along the edges of the latter. Cerebral matter showing numerous red points and striæ on section, but no continuous blush. Ventricle greatly dilated, extending the whole length of the hemispheres, and full of serum. In each posterior cornu floated a thick continuous flock or flake of green-coloured purulent matter. The ventricular lining membrane was thickened and vascular in parts, and rough and broken down elsewhere. No central softening existed. A small quantity of green purulent matter was found at the base. The cerebellum was rather softer than natural. No tubercular deposit existed within the cranium, nor within the thorax.

The absence of the ordinary characters of simple hemispheric acute meningitis, of those of the tuberculous meningeal affection, the slight evidence, comparatively, of lesion at the base, and the very positive signs of the ventricular changes, together with the peculiar symptoms, authorize me, I believe, in considering the above case as one of simple acute ventricular meningitis.—*Lancet*, Oct. 8, 1853.

21. *Abscess of Brain—Disease of the Ear.* By W. HUGHES WILLSHIRE, M. D.— Disease of the central organs of the nervous system, from more primitive mischief going on in the bony structures adjacent, is of no unfrequent occurrence. This connection between scrofulous disease of the internal ear and the destruction of the brain is occasionally illustrated by such an example as the following: J. F., a boy eleven years of age, and living at Southwark, came under my care in the month of July, 1852. His mother stated that, three weeks before, he went into the country, but returned home ill. He then "had some fits," and soon began to complain of his head. A discharge of matter which had been wont to flow from both ears now stopped, and the pain of the head then became so intense that the boy screamed out from the agony. He then had another fit, and I was now requested to see him. On cross-examination, it appeared that, when two years of age, he had "brain fever," then "inflammation of the ears," and discharge from them, which had troubled him very severely off and on until now. He was of a very scrofulous family. He was quite conscious, lying with his hand placed against the right side of his head, complaining of the pain there. The tongue was coated, the bowels not costive, and there was some fever. Leeches were applied to the temples, blisters behind the ears, and afterwards poultices to the latter organs. Purgatives and full doses of nitre were also given. For four or five days great improvement seemed to follow; so much so, that I began to think the cerebral disturbance had no intimate connection with the disease of the organs of audition. Suddenly, the patient became worse. I found him moaning from the severity of the pain, and sorely complaining of his head. In answer to my inquiries, I was informed that he had squinted, and "made mouths and strange faces." He constantly cried out for some one to press his head hard; consequently, his mother or some relatives sat at his bedside for hours together, pressing with their hands upon his head. In this state he remained for two days, not unconscious, but in what might be called rather a stupid condition, and evidently suffering intense pain in the head. Convulsions supervened, and death followed ten days after he began last to complain of the cerebral symptoms. On examination of the body, a large abscess was found in the left cerebral hemisphere, communicating with the ventricle, and filled with green fetid pus. On the other side, its walls approached at one point just close enough to touch the cranial bone connected with the left ear. The bones of the latter were diseased; but not to the extent of causing a communication between the external meatus and the interior of the cranium. Such, however, would apparently soon have occurred, as the bone was becoming carious at the point where, when we were removing the brain, the abscess burst, emitting much of its horribly fetid contents. The rest of the brain generally was anaemic; but the vessels of the meninges were greatly congested. Unfortunately, the exact character of the walls of the abscess was not carefully noted down at the time; but from recol-

lection it is believed it was of a thin cystic description. In this case, it may be asked, how long the abscess had been forming, and why was the pain so sorely complained of on the right side, whilst the collection of purulent matter existed on the left.—*Ibid.*

22. *Prognosis and Treatment of Epilepsy.*—The *Union Médicale* for May 17th and 19th, contains an article by Dr. HERPIN, of Geneva, on the above subject, of which we now give an abstract.

In the *Union Médicale* for December 1, 2, and 7, 1852, M. Moreau, of Tours, relates nine cases of epilepsy, in which oxide of zinc had failed to arrest the disease, a remedy stated by Dr. Herpin to be of considerable efficacy. Seven of the cases were of the class stated by Dr. Herpin to be most amenable to treatment, and the medicine was administered according to the rules laid down by him in his essay, *Du Prognostic et du Traitement curatif de l'Epilepsie*, published last year at Paris. Dr. Herpin points out the causes of M. Moreau's want of success, in the following manner:—

1. The first remarkable point which may account in a great measure for the different results obtained by M. Moreau and Dr. Herpin was, that eight of M. Moreau's cases were hospital patients, while Dr. Herpin's were private patients. Dr. Herpin observes, that physicians who have the charge of epileptic wards in hospitals regard the disease as almost always incurable; while those who see the patients at home, as far as can be judged from their writings, form a very different prognosis. Tissot, Odier, De la Rive, and C. Vieusseux, all believe in the curability of a fair proportion of epileptic cases. A principal cause of the difference between the opinions of the two classes of practitioners is, that those in private practice generally see the disease from its commencement, while hospital physicians almost always have to treat severe or obstinate cases.

2. M. Moreau had only male patients; Dr. Herpin had more females than males. From an analysis of his cases, Dr. Herpin arrives at the following results:—

Of twenty-six female epileptic patients, sixteen were cured, six were improved, and four were incurable.

Of twenty-four male epileptic patients, twelve were cured, four were improved, and eight were incurable.

There were thus twice as many incurable cases among males as among females.

3. With regard to age, Dr. Herpin has obtained the following results:—

Of thirty-five patients under 20 years, eighteen were cured, nine improved, and eight were incurable.

Of nine patients aged from 20 to 50, five were cured, one was improved, and three were incurable.

Of six patients aged from 50 to 80, five were cured, and one was incurable.

The period of life from 30 to 50 furnishes a third of incurable cases; while the other two do not together supply a fourth. All M. Moreau's cases were from 19 to 50 years of age, the most unfavourable period.

4. With regard to the previous duration of the disease, Dr. Herpin finds that—

Of twenty-three cases, which had existed less than a year, fifteen were cured, five were improved, and three were incurable.

Of twenty-seven cases of from one to twenty years' duration, thirteen were cured, five were improved, and nine were incurable.

While nearly one-half of Dr. Herpin's cases were of less than a year's duration, three of M. Moreau's patients had been ill from fourteen to twenty months, one for two years at least, three for six years, and one for about twenty years; the ninth had recent attacks of vertigo, but had probably had an epileptic attack six months before.

5. With regard to the number of attacks previous to treatment:—

Thirty epileptic patients, who had had less than twelve attacks, furnished only three incurable cases.

Twenty-two patients who had had at least from thirty to a hundred attacks,

furnished twelve completely obstinate cases, being at least five times as many as in the preceding category.

Of M. Moreau's nine cases, one, who was seized with vertigo, had perhaps had a fit; one patient had had only four attacks; one had had about fifty; four from seventy to eighty; one more than a hundred; and one more than five hundred. Besides this, one of the patients had, before the commencement of treatment, paralysis, denoting organic lesion of the brain, which was proved by the autopsy; and another had been twice insane. This latter circumstance was met with in one of Dr. Herpin's cases, in whom, though the conditions for treatment were otherwise favourable, the disease remained incurable.

Besides these causes of failure in M. Moreau's cases, Dr. Herpin points out that the want of sufficient judgment in the choice of treatment is perhaps a more powerful obstacle. He observes that as long as we are unacquainted with the indications of each remedy for epilepsy, we must begin by giving that which experience has shown to have succeeded in the greatest number of cases; then, in case of failure, we must have recourse in succession to other remedies of efficacy. By employing only one, especially in a number of patients placed in the same conditions as to age, sex, etc., we render ourselves liable to fall on the medicine which is not indicated. This is precisely what, it seems, has accidentally happened to M. Moreau.

Oxide of zinc is believed by Dr. Herpin to fail generally in epileptic patients in the vigour of their age, especially in men. Taking the whole of the cases placed in favourable conditions as regarded the number of previous attacks, and which were treated by oxide of zinc, he finds that there were twenty-six cures and five failures—all the latter being in patients between the ages of seventeen and fifty-nine years. On examining into the results of the treatment by oxide of zinc in men of between 20 and 50 years, in order that the conditions of sex and age might be the same as in M. Moreau's patients, Dr. Herpin finds six patients who were almost all in the most favourable conditions for treatment. In one, venesection appeared to have more influence than the zinc in producing improvement. Of the remaining five cases, there were—one cure without relapse, in a patient who had had only three attacks; two cures followed by relapse—in one of these the oxide of zinc failed on the subsequent trial; one in whom improvement was produced at the age of 15, but in whom the same remedy failed ten years later; and lastly, one in whom the disease altogether resisted treatment, although it had been commenced five days after the first attack. Thus, while the total number of favourable cases treated by zinc are in the proportion of five to six, adults furnish only three cases out of five, and in only one of these was the cure permanent.

In adult age, it is necessary to give zinc in large doses and for a considerable time; in childhood and old age, the same result is obtained from smaller doses, and, in some cases, from almost insignificant quantities.

The preceding observations appear to Dr. Herpin to afford sufficient reason for arriving at the following conclusions:—

1. Oxide of zinc seems to be indicated as an anti-epileptic in children and old persons.
2. It often fails in persons of middle age, especially in men.
3. If it be employed in females, it must be given in large doses and for a long time.

Whatever, Dr. Herpin observes, may be the remedies employed, it is of the highest importance that the disease be treated at as early a period as possible. He is convinced that, by perseveringly treating epilepsy from its earliest manifestation, there is a certainty of cure in a large majority of cases. At present, some mistake the first symptoms of the disease; others treat it for a time by means almost always ineffectual, such as bleeding, anthelmintics, etc.; others again try useful remedies, but timidly, and without effect. A small number, chiefly hospital physicians, form a tolerably accurate notion of the choice of a medicine and of the results obtained; but they are placed in the worst conditions for acting at the most favourable moment.

Dr. Herpin promises, at a future period, to publish in the *Union Médicale* the details of some cases in the private practice of himself and others, giving both

the successful and the unsuccessful cases in the proportions in which they have been met with.—*Association Medical Journal*, Sept. 16, 1853.

23. *Chronic Disease of the Stomach with Sarcinæ in the Vomited Matters.*—[Those peculiar bodies termed Sarcinæ, found in animal fluids, have latterly attracted considerable attention. In the original department of this number (p. 96), we have inserted an interesting paper on the subject by Dr. Durkee. Dr. W. H. RANSOM relates (*Medical Times and Gazette*, Nov. 12 and 19, 1853) four cases of chronic disease of the stomach with sarcinæ in the vomited matters, and presents the following interesting observations on the conditions of the appearance and pathological value of those peculiar bodies.]

The attention which has recently been drawn to the occurrence of the peculiar bodies named by Goodsir—sarcinæ ventriculi in vomited matters—will, perhaps, be considered a sufficient excuse for the following attempt by analysis to ascertain the conditions of their appearance and their pathological value. I have been able to find notices of thirty-three cases recorded by Goodsir, Bence Jones, Virchow, Todd, Brinton, Hassall, Busk, Hare, Jenner, Frerichs, Miller, and Neale.

Of the 33 cases, the sarcinæ were found in the alimentary canal, or in its discharges, in 26 instances; in the lung in 2 instances, in the urine in 4, in the ventricles of the brain in 1.

Of the 26 cases where they were found in connection with the alimentary canal, they coexisted with disease of some part of its course in 22 instances; with disease of some other part of the body not of the alimentary canal, twice. They were found without evidence of any disease in 2 cases—1 a dog (Frerichs), and 1 a rabbit (Virchow). It must, however, here be noted, that Frerichs states he has found sarcinæ in the stomachs of persons after death who had not vomited during life, but he gives no numbers.

In 12 cases pain was said to be present at the epigastrium, in 14 the point was not noted, in 17 vomiting was present; in 4 cases, the details of which were not given, it is not mentioned; in 5 it was not present; 2 of these were rabbits, 1 a dog.

Of the 17 cases where vomiting was present, it was acid in 12, and the reaction not mentioned in 5.

Acetic acid was present in the vomited matters in 5 cases (with the normal acids), and butyric acid in 2 cases; in 10 cases it is not mentioned; in 10 cases a scum was noted on the vomited matters; in one of these the gas was shown to be carbonic acid by Professor Graham, but in this case torulæ were also present; in 8 of the 26 cases torulæ coexisted with the sarcinæ; in 15 cases they were not mentioned; in 3 they were not present.

Of the 17 cases of vomiting, the quantity was very great in 12, small in amount in 2, and not noted in 3.

In only 10 cases was the colour of the vomited matter stated; of these it was brown in 8, nearly black in 1, and called dirty in 1.

Of the 17 cases, blood was noted only three times in the vomited matters. Albumen has been twice found independently of blood, by Dr. Hassall.

Food has generally been found in the vomited matters. Sugar has been detected, and there can be little doubt it is always present when starch food is present. In a few cases, large quantities ofropy mucus have been said to be present.

The bowels were confined in 8 cases, regular in 2, and not noted in the remainder. The feces are not noted sufficiently often as to colour, to render any numerical statement of value; they have been noted three times as nearly black, and in two of these I sought in vain for blood, though albumen was present in one of them.

In 9 cases wasting was present; in 2 it was unimportant; in 1 it was not present. In the 22 cases, the duration of the symptoms has varied from 4 months to 23 years. The ages of persons in whom they have occurred have varied from 1 year to 63 years. The urine was found to be alkaline in 3 cases; normal in 2; not noted in 17.

Of the 26 cases, 11 gave *post-mortem* results: 1 a healthy rabbit, Virchow; 1 rabbit with marasmus and ichthyosis, Virchow; 1 case of diabetes, Dr. Brinton; 1 of rupture of the diaphragm, Mr. Busk; 1 of pleurisy with vomiting, Mr. Busk; 2 cases of cancer of abdominal organs, the Writer;¹ 2 cases of non-malignant ulcer of the stomach, and perforation, Dr. Todd and the Writer; 1 case of simple stricture of the pylorus, given above; and 1 mentioned at the Pathological Society, details imperfect.

Of the 12 cases where the vomiting was acid, 3 took carbonate of soda with relief; 2 took carbonate of magnesia with relief; in 1 creosote relieved the sickness; in 7 sulphite of soda was given, in all with relief; in none did a cure result.

We may conclude from the foregoing, that sarcinæ are not peculiar to the alimentary canal as a locality. When they exist there, they are not necessarily attended with notable symptoms. Contained in the above is the conclusion, that they do not necessarily cause vomiting. Sarcinæ are not necessarily accompanied by acid fluids. Virchow found them in an alkaline fluid in the lung; therefore, they do not cause the development of acids in the stomach; which is farther proved by the continuance of acid vomiting after sarcinæ have disappeared. The sarcina has no constant relation to the torula cerevisiae, none to copious watery vomiting, none to alkalinity of the urine, none to any single anatomical condition of the organ in which they appear.

Notwithstanding this series of negatives, it may be affirmed, that sarcinæ very commonly coexist with the following group of symptoms, viz: obstinate chronic vomiting of large quantities of an acid, watery fluid, which forms a scum on the surface; epigastric pain, constipation, and wasting.

In these cases, the vinous, the acetous, and perhaps the butyric fermentations are set up in the stomach, and probably as a result of the too long delay of the food there.

The cases which have occurred presenting this group of symptoms, have been pathologically most varied; but pyloric obstruction, either proved by *post-mortem* observation, or inferred from the symptoms during life, appears common to all.

Sulphite of soda has been found useful only as a palliative in these cases; magnesia and carbonate of soda have also afforded relief. Some cases appear to be as much relieved while taking certain bitter herbs; and some have very variable and irregular periods of improvement, traceable to no cause. In those cases where no notable symptoms attended the sarcinæ, the conditions were present which might have caused some delay of the food within the stomach, and thus have permitted some peculiar fermentative process.

Before coming to a conclusion, however, it may be well briefly to consider the question as to the nature of the bodies called sarcinæ; after which it will, I think, be easier to decide on their influence and pathological significance.

Goodsir himself considered them to be vegetable organisms; they have been since considered animals by Busk—degraded muscular fibre by Schlossberger—a higher stage of development of torula by Simon; but these views can no longer be entertained. The incorrectness of the latter view has been proved in the case of Hemm, where no torulæ were present; and the supporters of the two former opinions have themselves since changed their views. Meyen, Köliker, Hasse, and the most competent observers in this country, support the original view of Professor Goodsir; Virchow, who has devoted considerable attention to the subject, appears unable to convince himself of their really cellular structure, without proof of which he considers it to be impossible to class them as plants. With hesitation, then, I express the opinion, that their cellular nature can be satisfactorily determined, and feel disposed to support Goodsir's view, which the following observations on the growth and development of these bodies bear out. In the vomited matters of Hemm, examined

¹ One of these cases was medullary cancer of the mesenteric glands and small intestines, in which sarcinæ were found after death in the duodenum. It is not given above.

May 8, I observed that the rectangular cleavage had gone on so much more rapidly than the growth of each individual square, that these latter were, in some clusters, reduced to mere points; in these cases, the primary groups of four, near the margin, were a little loose and separated from the cluster; and it was then easy to observe the true cellular structure; for in this stage, the nucleus, which is distinguishable by its high refractive power, and faint greenish-yellow tinge, is separated to some distance from the colourless cell-wall, which, in the more advanced stage, it is in contact with and obscures.

Floating free, were seen also transparent round cells, which contained sometimes two nuclei, easily recognizable as identical with those of the sarcina, and showing a mark, as if about to split again into four, sometimes three, one of the nuclei having divided before the other, which often occurs in the clusters; sometimes four nuclei, and these in various states of approximation, according to the stage. These appearances seemed strongly to point out, that one mode of propagation of these organisms is the throwing off of single cells as gemmæ, which then, when free, undergo the same series of changes as the parents did.

The conditions necessary to the growth and development of sarcina are of more consequence to the present inquiry; but of these little or nothing is known. No one has yet succeeded in cultivating it artificially, though several attempts have been made; and it would seem very probable, reasoning from analogy, that, like the yeast-plant, it occurs in the presence of certain matters essential to its growth, and thus may be characteristic of some peculiar fermentation.

Dr. Todd appears to have entertained this view of its nature, as he considers it to be developed in the stomach when food is too long delayed there, and does not expressly attribute any effects to its agency.

Lehmann, Frerichs, and Virchow also consider it innocuous. Dr. Jenner, to judge from the principle on which he has founded the treatment by sulphites, attributes some effects to it; and Dr. Hassall does not hesitate to say, that "the presence of sarcina satisfactorily explained the intense acidity of the contents of the stomach, upon which, again, the frequent attacks of vomiting depended."

That this latter assertion is incorrect, is, I believe, proved in the foregoing analysis; and it is, at the same time, shown with equal certainty, that the most severe symptoms which often coexist with sarcinæ depend on other causes, namely, anatomical lesions. It remains to decide whether the sarcinæ produce any unpleasant symptoms when present, in addition to those caused by the disease of the stomach; and if they ever occur as primary causes of gastric disorder.

The relief afforded by the use of sulphites is great and indisputable: and as these destroy the sarcinæ, it appears at first sight strong evidence in favour of the opinion that sarcinæ are the cause of the symptoms relieved; however, when we remember that the relief is but temporary, and all the symptoms return under the use of sulphites, though the sarcinæ are still absent, the evidence becomes weaker; and when we farther reflect that sometimes as much benefit is derived from carbonates of alkalies, which do not destroy the sarcina, as the sulphites produce, the action of these latter can no longer be brought forward as important evidence in favour of the active agency of sarcinæ. Indeed, it appears to me not improbable, that much of the benefit derived from the sulphites is due to their action, in the same manner as carbonates, in neutralizing the acids of the stomach, and something also to their influence in checking the growth of tornæ and the evolution of carbonic acid gas; subtract these from the sum of relief sulphites afford, and but little remains to be accounted for. From the analogy of sarcinæ with the humbler forms of fungi or algae, which so abundantly infect the body, living and dead, wherever some decomposition is going on, as in the mouth and in the intestinal canal, I should also conclude that they do not exercise any important influence on the functions of the organ in which they exist. Briefly it may, then, be stated, that it is proved that sarcinæ do not produce any notable symptoms in those cases where they coexist with disease of the stomach; and it is not yet shown that they have any—even the slightest—effect. Almost with equal certainty may it be said, that they do not excite primary gastric disturbance.

24. *Pathology of Cholera.*—Dr. J. R. CORMACK, in an interesting paper on cholera (*Assoc. Med. Journ.* Nov. 11, 1853), gives the following summary of his conclusions relative to the pathology of that disease.

1. Cholera is a fever, intimately related to those fevers which depend on malaria.

2. The intermittent or remittent type can be generally recognized in the milder, and also not unfrequently (though less distinctly) in the severer cases.

3. The stage of collapse ought to be considered as an aggravated cold stage of the paroxysm of a pernicious fever, which may spontaneously terminate in death or reaction.

4. The least dense portion of the blood has an excessive tendency to exude through the capillaries of the stomach and bowels, and pass from the body by vomit and stool.

5. The inspissated residual blood, being unable to pass through the small pulmonary vessels, causes congestion of the lungs; and, as speedy consequences of this condition, paralysis of the right side of the heart from over-distension, asphyxia, and other subordinate derangements of the vital actions.

6. Death may take place from—

- a. Asphyxia.
- b. Necraëmia, with loss of the least dense portion of the blood by stool and vomit.
- c. Necraëmia, without such loss of the least dense portion of blood as can be discovered during life—the exudation remaining within the stomach and intestines.
- d. Toxæmia, from absence or deficiency of sanguineous depuration.
- e. Inflammation of lungs or other organs supervening in convalescence.
- f. Debility.
- g. Gastro-enteritis.
- h. Two or more of the above causes combined.

7. The anatomical lesions found on dissection vary with the causes of, and circumstances attending, death.

25. *Treatment of Cholera.* By JOHN ROSE CORMACK, M. D.—The advocacy, by many, of a uniform and empirical system of treatment of cholera, has greatly tended to obstruct the progress of rational inquiry. Several plans and particular remedies have been found useful; and practitioners, impressed by the published account of this success, have too often contented themselves with empirically repeating the instructions of others, without carefully analyzing the facts, and seeking for a rational explanation of the *modus operandi* of the therapeutical agents which they employ. The stage of the disease has not been sufficiently noted in relation to the therapeutic means employed; and recoveries have been too largely designated cures. With one, capsicum has been the specific; with another, camphor; with another, sulphuric acid; with another, acetate of lead; with another, quinia; and so on might the list be indefinitely extended. Now, that all of these and other medicines are *par excellence* cholera remedies, I perfectly believe; and it seems to me that a more successful treatment is to be discovered by a judicious application of the means which we possess, than by searching for some new specific.

It seems to be of primary importance to bear in mind that we have a poison-disease to deal with, resembling, if not indeed identical with a pernicious ague; that it has a course to run, which may be modified and curtailed, but which, even when let alone, shows a disposition to terminate in recovery. We have, therefore, in the first stage, in which chills and other premonitory symptoms of discomfort may be present, to adopt measures which may be regarded as prophylactic rather than curative. It is in this stage that the pernitrate, or some other preparation of iron, and the disulphate of quinia, are of signal benefit. Here, however, we must not follow a blind empiricism. We must, if the digestive system is at fault, combine with the use of these special medicines a judicious alterative system; and, should there be any tendency to copious watery evacuations—the serum of the blood—we must be prompt in our administration of those remedies which are generally termed haemostatics; among

which may be particularly mentioned quinia, sulphuric acid, nitrous acid, acetate of lead, creasote, and nitrate of silver. If the case should proceed a little farther, in spite of our endeavours to arrest its progress, or should the case, from its inherent intensity, or from neglect, not present itself for medical treatment till the secondary effects of the loss of serum have become apparent, we may probably find it useless to think of the quinia, and be obliged to treat the cramps and collapses which threaten speedy dissolution. The necessity for diffusible stimulants is now apparent; and, of them all, as a general rule, camphor will be found the most useful. It can be conveniently administered in large doses by dissolving it in chloroform; and the solution combines so well with creasote, that it will often be found prudent to confine our administration of medicine to frequent doses of a mixture of camphor, chloroform, and creasote. The chloroform is useful as affording facilities in dispensing; and it cannot, in the small quantities administered, do any harm. The camphor acts quickly as a diffusible stimulant; and the creasote has a powerful effect in restraining the serous discharge. Indeed, I am inclined to think that its beneficial effects are not much, if at all inferior in this respect to those of sulphuric and nitrous acids. External warmth, and the use of stimulating embrocations, are very beneficial in conjunction with the internal use of camphor. The suppression of urine is not a symptom which is to be relieved by the administration of diuretics; it is a necessary consequence of the congestive paroxysm of the disease, and its removal is likely to follow the cessation of that paroxysm.

Enormous doses of opium, of calomel, and of other powerful drugs, have been given to cholera patients; and there can be no doubt that such substances, when introduced into the system when in a state of collapse, are not likely to produce any very suddenly appalling effects. And, indeed, in a vast number of cases, they seem to lie as quietly in the stomach of the cold cholera patient, and to produce as little effect, as if they were deposited in a glass bottle. Should the patient, however, emerge from the state of collapse, he runs as great a risk from the poisonous doses of these medicines which have been placed in his interior, as he has just escaped from the pestilence. Large quantities may certainly pass off by the bowels, unacted upon; but it cannot be questioned that in a very great number of cases which have been treated in the way mentioned, patients have had their convalescence abruptly arrested by fatal narcotism or exhausting salivation. The use of opium and calomel, in ordinary doses, is often necessary; but the inordinate doses of these medicines formerly, and perhaps still employed by some, cannot be too much condemned.

The importance of arresting the serous discharge, and of maintaining the warmth of the body by the application of heat externally, cannot be overestimated. In fact, the judicious carrying out of these intentions constitutes the essence of the treatment of cholera. Other therapeutic measures may be regarded as liable to considerable variety, according to circumstances, and as valuable and auxiliary rather than as always indispensable. The prompt arrest of the serous discharge, by creasote, sulphuric acid, nitrate of silver, or other remedy, has undoubtedly saved innumerable lives; and from amid the chaos of contradiction, depreciation, and laudation, in which the merits of special modes of treating cholera are involved, the diligent application of warmth to the surface can be extricated as a measure of established value.

Mr. Barwell, in a little work just published, says: "It is a grand essential to keep up the temperature of the patient, since the tendency to become cold is certainly a great characteristic of this disease. Hot bottles should be placed to the feet, and inside of the thighs; and India-rubber bags filled with hot water to the loins and abdomen. The bedclothes must be ample, and should be so arranged, by means of an extra blanket wrapped round the shoulders, or passing round the chest and under the arms, that he does not bare that part to the cold in his restless jactitations, nor in rising on the elbow to vomit, as he may perhaps frequently be obliged to do." These recommendations of Mr. Barwell are sound and practical. They are, moreover, firmly based upon facts which came under his observation in St. Thomas's Hospital. In the following passage, he states very clearly, and, I think, very correctly, the relative value of internal stimulants and external warmth in cholera; and he also refers to the hospital experience already referred to, upon which his opinions are founded.

"Stimulants," says Mr. Barwell, "such as brandy, ammonia, or wine, though decidedly useful in their place, have not such effect in restoring circulation, and exciting the system to greater action, as in collapse from other disease; indeed, considering the difference of its cause in this and in other maladies, it is not to be expected that they would be as beneficial; for prostration usually occurs in consequence of nervous shock, and consequent loss of nervous power; therefore stimuli which act upon that system are naturally, in those cases, such as would benefit. But in this disease there is comparatively little loss of nervous power; in fact, with so great disturbance of the circulation, the retention of nervous power is marvellous. Our remedies ought not, therefore, to be directed through that system, but we should, if possible, find some means of acting on and recalling the circulation, without exciting the nervous centres; and the best mode of doing this is by external heat. This principle of combating the deadly cold collapse was not found or recognized at St. Thomas's until after several cases had been treated at the hospital, and the general inefficacy of medicines or of stimulants proved. Though a certain number under the treatment then adopted recovered, still, the whole result was unsatisfactory; thus, of twenty-eight cases of perfect collapse, before external heat was used, seven only recovered—a very small proportion; but, after this was employed, sixty-one patients were treated by some mode in which this formed an essential part, and of these, twenty-seven recovered, or not very far from half the whole number." (P. 97.)

Did space permit, I could adduce much evidence of the same description, in addition to that which has now been quoted. In fact, I could show that the success which many have ascribed to favourite pharmaceutical nostrums, ought, with much greater probability, if not with absolute certainty, to be ascribed to the external warmth employed along with the drugs.

Having now glanced at the general principles upon which medicines ought to be employed in the treatment of cholera, I would now remark, that I have not enumerated every drug which may be usefully employed, and have selected those with the operation of which I am personally most familiar. This much, however, may be added, that they are good types of the respective classes of remedies to which they belong.

The formulæ to be adopted must of course be varied in accordance with the circumstances of each case; and it is by a ready power of modifying these formulæ, that the skill of the practitioner is displayed. The formulæ cannot be too simple. No therapeutic advantages flow from the multiplicity of ingredients; and by administering remedies for the purposes of clinical study, as well as of cure, it is obviously necessary not to give more than one medicine, or one class of medicines, at the same time.

The following medicines possess, in a high degree, the power of arresting the serous diarrhoea, which generally precedes collapse by a good many hours, and which is the immediate cause of that collapse, as well as of the cramps:—

Creasote;	Nitrate of silver;
Turpentine;	Quinia;
Sulphuric acid;	Gallic acid;
Nitrous acid, and	Alum; and
Nitro-sulphuric acid;	Acetate of lead.

1. *Creasote.* Some patients refuse to take creasote, from a dislike to its odour; but if one or two doses of two or three drops can be taken every hour or two hours, in mucilage, I prefer it to any other means of cure in serous purging. It hardly ever fails.

2. *Turpentine* may be used in place of creasote, in doses of ten minims. I have in several cases of diarrhoea found it quite successful.

3. *Sulphuric Acid.* The use of this acid in diarrhoea is by no means new. The late Dr. Anthony Todd Thomson, in his *Dispensatory* (edit. 1837, p. 762), wrote as follows: "When combined with mucilages, it has been beneficially given in passive diarrhoea, operating on the relaxed nervous coat of the intestine as an astringent. The usual dose is from ten to thirty minims, *but this dose may be very often repeated.*" In later years, its use has been revived; and several writers in the various medical periodicals have spoken in high terms of

its efficacy. Among these, I may mention Mr. W. I. Cox, of Kensal Town, who has also employed it in cholera (*Lancet*, for August, September, and October, 1849, etc.); Mr. W. Griffith, of Eaton Square (*Ibid.* Oct. 4, 1851); Dr. G. B. Payne; Dr. Miller, of Stoke Newington; Mr. Edgar Sheppard, of Enfield (*Provincial Medical and Surgical Journal*, for September 15, 1852, and *Association Journal*, for March 18, 1853); and several other practitioners. To Mr. W. I. Cox is due, as far as I am aware, the merit of having first employed sulphuric acid in the treatment of cholera. In a tabular view of the result of treatment of ninety cases, given by him in the *Lancet* for January 26, 1850, five are mentioned as having been treated with sulphuric acid, generally in combination with Dr. Ayre's method. Four of the cases so treated recovered; but we can scarcely draw a conclusion from so small a number.

Dr. Fuller, of St. George's Hospital, in a paper lately published in the *Medical Times and Gazette*, speaks in high terms of the efficacy of sulphuric acid in arresting diarrhoea. In bilious diarrhoea, and in certain chronic diarrhoeas, he says it is of little or no avail; but in epidemic diarrhoea, in "acute autumnal diarrhoea," and in more decided choleraic diarrhoea, he has known no single instance of its failure. He gives it in doses of half a drachm, mixed with water, every twenty minutes or oftener, and the effects produced are described as remarkable; heat returns to the extremities; the nausea and vomiting cease; the purging is stayed; the cramps subside; perspirations generally break out; the tongue becomes moist, and slightly coated; the intestinal evacuations become healthy; and the pulse regains its normal steadiness.

In epidemic cholera, Dr. Fuller has had no experience in the use of this remedy. He would give it in doses of η_{xl} or $3j$, five or six times in an hour, simply mixed with water; and he is opposed to the employment at the same time of brandy or any strong-flavoured stimulant or carminative. Calomel, if it is thought necessary, may be given at the same time with, or after the acid. Mustard, bran, or other warm poultices or fomentations, may be applied; they usually afford relief. From the prompt action of sulphuric acid in arresting diarrhoea, Dr. Fuller expresses great hopes as to its superiority in cholera over other medicines which require a longer time for their action.

4. *Nitrous Acid and Nitro-sulphuric Acid.* Mr. W. J. Anderson, in the *Association Journal* of Nov. 4, 1853, recommends a combination of nitrous acid and sulphuric acid. He says: "Can a remedy be found which will readily yield up its oxygen, and supply that element to the impure blood; and at the same time, by its astringent properties, tend to check the enormous exudation which takes place from the mucous surface of the intestinal canal? In our present state of knowledge, some of the mineral acids appear to be the best adapted to this purpose; and, for certain reasons about to be explained, a combination of nitric with sulphuric acid seems to me to be preferable to any other. The acid should be administered in tolerably full doses, and repeated at intervals varying according to the nature and urgency of the case. For an adult, we may give acidi sulphurici diluti $f3ij$, acidi nitrici diluti $f3j$, in a six-ounce mixture, an ounce being the dose for an adult.

Mr. Hope, of Chatham, in the *Edinburgh Medical and Surgical Journal* of July, 1826, recommended nitrous acid in cholera. He spoke strongly of the efficacy of the following mixture: R. Acidi nitrosi $3j$; Mistura camphorae $\frac{3}{viiij$. Misce, et adde tincturae opii $\frac{3}{iiij$. Of this, one-fourth is to be taken every three or four hours. Mr. Whiteman, of Putney, informs me that he finds nitrous acid so prompt and so satisfactory a remedy in epidemic diarrhoea, that he trusts to it in preference to every other medicine. He often combines with it a little laudanum; but, in the majority of cases, he uses the acid alone. I have not used nitrous acid in diarrhoea or cholera; but I have no doubt as to its value in arresting the discharges.

5. *Nitrate of Silver* I have not given in cholera and diarrhoea, except in the form of enema. It is valuable in this form. My experience is too limited to enable me to compare the efficiency of enemata of nitrate of silver with enemata of acetate of lead and of alum.

Dr. Lever and Dr. Aitken are the principal English writers who advocate the use of nitrate of silver in cholera and diarrhoea. On the continent, the authori-

ties by whom it is recommended are Hirsch, Canstatt, Boudin, Bouchardat, and Rousseau. Dr. Charles Lever, in 1832, extolled the nitrate of silver as a remedy in cholera. In a forlorn case, he administered thirty grains dissolved in three ounces of distilled water, which the patient swallowed at once. She lay quiet for six minutes, when she vomited a small quantity of whitish turbid fluid. She had no return of the vomiting, fell asleep, and recovered. [Johnson's *Medico-Chirurgical Review*, Oct. 1834, p. 444.] I give ten grains in half a pint of water as an enema. Hirsch prescribed it in the form of mixture; and I am sure that it is a safe medicine in this form, as I have given it internally in other diseases, dissolved in abundance of water. The danger lies in giving the medicine in too concentrated a form.

6. *Quinia*. Of the power of quinia to check epidemic diarrhoea, and to thus arrest cholera in what may be regarded as its first stage, I feel well assured, from an extensive use of the remedy. It is true that I have generally combined it with sulphuric acid, or with iron, and sometimes with both; so that my facts are not available for the purpose of accurately determining the value of the quinia given alone. Dr. James Bird and others have, however, from ampler data, arrived at the same conclusion. Dr. Mandl, in the *Gazette Médicale* of October 29, p. 682, speaking of the importance of checking the diarrhoea which he has generally found in the initiatory stage of cholera, says, "the most powerful means of arresting epidemic diarrhoea is by administering disulphate of quinia in doses of ten centigrammes (a grain and a half) every two hours." He says that he has seen cases of cholericine, in which opium and injections had failed to arrest the discharge from the bowels, cured by quinia in twenty-four hours. Dr. Charles Bell, who has written so ably in favour of the doctrine that cholera is a fever of a remittent or intermittent type, naturally advises quinia. He says: "If asked what I should do in a case of cholera, I should answer, that that depended very much on the stage in which I found my patient; but, in all cases and in all stages, I should certainly give a largely diluted solution of some salts of iron and quinia, with a view to counteract the morbid inactivity of capillary congestion, and repeat it as often as the patient would drink of it, till warmth was restored." The practice is, there can be little doubt, correct; but it is equally probable that it is a method well calculated to stop the diarrhoea, which Dr. Bell strangely considers salutary. He makes this dangerous announcement: "Diarrhea is a natural mode of relief to congestion, and thereby tends to the prolongation of life." The hemorrhage from the stomach thrown up as black vomit in yellow fever, is nature's mode of relieving congestion; but it is not a salutary hemorrhage. Within certain limits, a serous or a sero-sanguineous discharge may be harmless, or even useful; but inasmuch as it is physically impossible for the blood to circulate when it has been deprived of its serum, so it is imperative upon the practitioner to restrain the serous evacuations of cholera.

7 and 8. *Gallic Acid and Alum*. I have often used these remedies in the diarrhoea of phthisis, and occasionally in epidemic cholericine. They are less to be relied on as means for arresting serous diarrhoea than creasote and the mineral acids. They are not superior, and hardly equal, to logwood and catechu, as mere astringents; but I know that some authors regard them as especially the astringents to be used in cholera and serous diarrhoea.

9. *Acetate of Lead* may be used internally alone, or in combination with opium. It is generally a prompt astringent when used in the form of enema.

I have not space to enter upon a consideration of all the several reasonable methods of treatment which have attracted the attention of the profession, and deserve to be spoken of with respect. I can only notice one of them at present.

The sulphur plan, as advocated by Mr. Grove, of Wardsworth, has evidence in its favour, though I do not think that the theoretical ground—the fungus theory of cholera—upon which it is advocated, is tenable. Mr. Grove uses the following formula: R. Sulphuris precipitati 3*j*; sodæ bicarbonatis 3*j*; sq. lavendulæ compositi 3*vj*; aquæ q. s. ut fiat mistura 3*iij*. A teaspoonful of this is taken every half hour or every quarter of an hour. Mr. Grove informs me that the effect of the medicine is to restore warmth, and promptly to check the serous discharges.

I believe Mr. Blacklock was the first author who recommended sulphur as a remedy for cholera. Although I have no personal experience of its virtues, I may quote, in connection with this subject, the following passage from a letter dated September 22, 1849, which I received from a non-medical friend residing in Edinburgh:—

"I saw a man to-day from the south muirs, who told me that his wife and he, as well as many of the people of his remote landward parish, had been very unwell; and, from the symptoms which he mentioned, it was clear that they had suffered from cholera, and had been saved from it. They had no medical man near them, and got no medical attendance; yet there were no deaths. As soon as they found cramps come over them, they took a teaspoonful of powdered brimstone, or sometimes the flowers of sulphur, mixed with a little whiskey, to which was added water, if the sick could not otherwise swallow the dose. The man described the cure as certain and very rapid. Try this on the London folks; it may serve the afflicted, and do you much good."

Mitchell says that "the sulphureous localities of the sickly island of St. Lucia are its only salubrious places. Cities, too, which abound in sulphur products, enjoy an immunity from ague, for which they are everywhere noted. Immediately around the sulphur works, and factories for making gunpowder and sulphuric acid, the vegetation and the ague disappear together." To this we may add, that, in 1849, during the bombardment of Rome, that city suffered much less than usual from malarious fevers—a fact which induced Mr. Walker to recommend cannonading and the discharge of fireworks, as measures likely to ward off or prevent the spread of cholera. The rushing of columns of air, caused by the production of a vacuum, is, however, the more probable explanation of the benefits (if any) which resulted from the cannonade. Mr. Blacklock (Madras, 1848) says: "I hope yet to see the day when sulphur, in small quantities, will be regularly issued to every soldier in the field, in India, say forty grains per day while actually marching, and twenty grains per day during halts, as a sure way of warding off this terrible disease; and I have a firm belief that sulphur, so employed, will be as effectual in banishing cholera from our armies, as lime-juice has been in eradicating scurvy from our fleets."

Mr. Grove quotes the following curious passage from the *London Practice of Physic*, a work published in 1692: "In the year 1670, about the autumnal equinox, a world of people here were seized with a most dangerous flux (though without blood), and joined with a cruel vomiting, which presently caused great faintings and a total decay of strength. For the cure of this disease, no evacuation did good; nay, bleeding, vomiting, and purging did hurt; only cordials, and those of the hottest nature, to wit, such as abounded with *spirit and sulphur*, did good." (P. 22.) From this it would appear that the whiskey and sulphur treatment of the south muirs of Scotland is an old tradition.

Manec administered sulphur in all possible forms, in his treatment of cholera in the Salpêtrière in 1849.

Sulphur is a stimulant of the capillary circulation, and so is camphor, one of our best remedies against collapse. Perhaps the combination of the sulphur with hydrogen is the cause of the augmented heat in the surface of those who take the former in repeated doses. The characteristically offensive smell of sulphuretted hydrogen gas is sufficient proof that this chemical action does take place. The therapeutic action of sulphur is, however, yet open to investigation.

The treatment of cholera cannot be reduced to any routine formulary, but ought to be adapted to the particular condition of each patient in each stage of the disease.

The principal indications of treatment may be thus summed up:—

1. The "rice-water" vomit and purging require to be energetically subdued by quinia, sulphuric and other acids, ereasote, nitrate of silver, and such like remedies.

2. In actual and threatened collapse, external warmth, stimulant embrocations, and those internal stimulants which act on the capillaries, are of signal benefit.

3. In reaction, and during convalescence, local inflammations and congestions require to be guarded against or subdued; and rational means must be adopted

to restore the secretions of the liver, kidneys, and skin, but particularly of the two former.

4. Last, though not of less importance, the character of the fever should be modified, and a repetition of the paroxysms guarded against, by change of air, or by the administration of quinia, which, in the majority of cases, from the existence of anaemia, ought to be conjoined with iron.—*Assoc. Med. Journ. Nov. 11, 1853.*

26. *Iodide of Potassa in some forms of Chronic Periosteal Rheumatism.*—Dr. W. R. BASHAM states that there are some cases of chronic periosteal rheumatism in which the curative agency of the iodide of potassa is very conspicuous, while in others, having many symptoms in common with them, its effects have been doubtful or nugatory.

"From time to time," he says, "cases have come under observation, presenting the usual symptoms of chronic rheumatic pains, gnawing and erratic, with paroxysms aggravated by atmospheric changes; and there has been diffuse tenderness of the periosteal surfaces nearest in contiguity to the skin, as the scalp, clavicles, ulna, tibia, &c.; sometimes distinct tumefaction with exquisite tenderness; and these nodal elevations in some have been evanescent, in others persistent during the whole course of the malady. It has been frequently noticed, and practitioners of experience cannot have overlooked the fact, that some of these cases materially and rapidly improve under the administration of the iodide of potassa, while in others, with symptoms in all respects identical, no benefit has been derived or improvement become apparent till the patient has been put through a course of the bichloride of mercury and sarsaparilla.

"I was once inclined to think that these varying results depended on peculiarity of constitution, and that the treatment of such cases by one or other of these remedies must remain, to a certain extent, empirical, and destitute of any settled principle. But a careful examination of all the precedent conditions in the histories of such cases exhibited the following facts: That in all the cases in which the iodide had been productive of benefit, the patient at some antecedent period had been salivated, in some for syphilis, in others for an inflammatory or other disease; while in those cases in which no benefit was obtained by the iodide, the patient had either never taken mercury to salivation, or had suffered from syphilis or gonorrhœa, which had either been neglected or treated only locally. It appeared, then, that there were two predisposing causes to the same form of chronic periosteal rheumatism, the impregnation of the system by mercury, and the lurking and subtle influence of the syphilitic virus.

"In my clinical lectures for some years past, I have directed the attention of students to these facts, and impressed on them that the treatment of these cases of chronic periosteal rheumatism should be based on these principles; the first form of the disease requiring the iodide of potassa, the second form the agency of alterative doses of some mild preparation of mercury."—*Lancet, Nov. 19, 1853.*

27. *Sesquichloride of Iron, etc., in Erysipelas.*—Many instances have lately occurred in the London hospitals, in which the treatment of erysipelas by the much-vaunted tincture of iron has appeared to be very successful, but none of the experiments have been sufficiently crucial in their character to warrant us in considering their results as conclusive. Still, however, the evidence in favour of the remedy is very strong. Some of the patients on whom it has been tried have been young children. With regard to local applications in this disease, it may be stated that the wrapping up the affected part in a large and thick sheet of cotton wool, appears to be very superior in its protecting influence to all others. In several severe cases of erysipelas of the scalp, lately, in St. Thomas's Hospital, Dr. Goolden had the whole affected parts smeared over with a thick coating of white paint. The patients did very well, but the remedy is not an agreeable one to use. It is, we believe, in common employment in some of the pottery districts, where erysipelas of the face and head, from the alternate exposure to cold draughts and to furnace heat, is very frequent.—*Med. Times and Gaz. Nov. 12, 1853.*

28. *Tobacco-smoking in Traumatic Delirium.*—In the *Medical Times and Gazette* for August 13, p. 167, a case is mentioned in which delirium appeared to have been induced by forced abstinence from tobacco, and was relieved by its re-employment. Since then, another very conclusive illustration of the medicinal usefulness of the weed has occurred. The patient was a man in Guy's Hospital, whose skull had been trephined by Mr. Poland, on account of a compound fracture, with depression. The dura mater had not been lacerated, and the parts had been put by the operation in a condition every way favourable to recovery. The man, however, became extremely restless, and, in spite of the use of his accustomed stimulants, ultimately delirious, insisting upon getting out of bed, etc. In his delirium he raved much about his pipe, and this indication for treatment Mr. Poland at once seized, directing, although contrary to the rules of the hospital, that the patient should be allowed to smoke. The beneficial effects were immediately apparent, and the favourable termination of the case appeared to be in no small degree attributable to this simple expedient.—*Med. Times and Gaz.* Nov. 12, 1853.

29. *Lobelia in Asthma.*—The lobelia inflata, a drug much praised and abused by quacks, and somewhat slighted by the profession, is in constant use among the out-patients in the City Hospital, for diseases of the chest. In doses of ten minimis three times in the day, it appears frequently to produce most admirable effects in cases of chronic bronchitis complicated with tendency to paroxysmal asthma. It is commonly given in conjunction with sedatives, expectorants, or stomachics, often agreeing remarkably well with the latter. Patients taking it frequently complain of much nausea and sense of depression during the half hour or so following each dose; but it seems, on the whole, to decidedly improve the appetite and digestion. If the nausea be excessive, combination with a few drops of dilute hydrocyanic acid is often useful.—*Med. Times and Gaz.* Nov. 12, 1853.

30. *Male-Shield-Fern as a Remedy for Tapeworm.*—Dr. ROBERT CHRISTISON extols (*Monthly Journ. Med. Sci.* July, 1853) the oleo-resinous extract obtained by ether from the root of the male-shield-fern, as a more efficacious and less disagreeable anthelmintic for the expulsion of tenia, than either the kousso, the pomegranate, or the turpentine. Upwards of twenty cases, he says, have been communicated to him in which that remedy had been used, and "in every case without exception the worm was discharged after a single dose, and usually in one mass. In some, it was brought away without any laxative, and occasionally in that case with very little fecular discharge accompanying it. For the most part there was no pain or other uneasiness, either before or during its action. This was the case even in an instance in which the tendency to the disease had existed for no less than seventeen years, and in which the worm evacuated was the largest and strongest I have ever seen. Several patients, who had often previously used other anthelmintics, have noticed this absence of uneasiness during the action of the male-shield-fern, as something different from what they had experienced invariably before. It must be allowed, however, that several other individuals have complained of gripping, sickness, or indescribable discomfort in the abdomen, and sometimes even of vomiting. But it admits of question, whether these occurrences depend on any direct action of the remedy on the human body, or upon the disturbed condition of the worm under the poisonous operation of the remedy on it. In fact, we have yet to learn that the male-shield-fern exerts any action on the human stomach or intestines, in the course of its deadly action on the parasitical inhabitants of them."

Dr. C. recommends twenty-four grains for a dose.

31. *Nicotin Injections in Paralysis of the Bladder.* By ANTONIO PAVESI.—L. R., between 60 and 70 years of age, of athletic build, but subject to attacks of gout, became affected, after nocturnal exposure to cold, with severe pains in the loins and the extremity of the spinal cord, attended with pain in the region of the bladder and strangury. After the employment of proper remedies, these general symptoms disappeared, but paralysis of the bladder remained, inasmuch

as sixty hours had been allowed to pass after the first occurrence of the stranguary, before the introduction of the catheter; from fear, as it was supposed, of exciting inflammation. Many remedies proved of no avail, and the patient was obliged to seek surgical aid twice or thrice a day, or to wear an elastic catheter. On August 2, he came under the care of Dr. Pavessi, who tried the effect of electricity by Daniell's battery, applied to the lumbar region, but without permanent good effect. Then nicotin was employed in the following way: Every morning a silver tube was introduced into the bladder, and, after its evacuation, four or five ounces of a decoction of mallows was injected to clear the organ. After a few minutes the fluid was allowed to flow out, when half an ounce of a solution of nicotin (twelve grains in twelve ounces of water), with one ounce of thin gum water, was injected. In the afternoon the injection was repeated, and in three days the quantity was increased to one ounce. While this was going on, the bladder acquired a daily increased power of contraction, so that at the end of fifteen days the catheter was laid aside. The patient did not experience any effects upon the brain. On September 22, he voided the urine in a full stream, and without straining.—*Med. Times and Gaz.* Oct. 8, 1853, from *Gazz. Lomb.*

32. *Pityriasis Versicolor curable by Local Applications.*—This common disease, known vulgarly as "liver-spots," and in the nosology of Wilson as chloasma, is one generally acknowledged to be of extreme intractability. Mr. Paget, we notice, among his out-patients at St. Bartholomew's, does not adopt any constitutional treatment whatever, but simply orders a wash of the bichloride of mercury (*gr. j. ad ʒj.*). He informs us that he has never known a case long resist the influence of this remedy regularly applied to the whole affected surface once in the day. At the Skin Hospital, although an arsenical course of internal medication is always prescribed at the same time, yet a mercurial lotion is also used, and may possibly be the chief curative agent. In the hands of Dr. Jenner, at the University College Hospital, the sulphurous acid has, we understand, succeeded very well. There can be little doubt but that the disease is almost invariably curable by local applications solely (*parasiticides?*). In relation to this mode of cure, it is important to connect the observation of Eichstedt and others, as to the eruption depending on the presence of a cryptogamic plant. Another interesting link in the same chain of evidence has recently been made out at the Skin Hospital, namely, that it is not unfrequently contagious.—*Med. Times and Gaz.* Nov. 12, 1853.

33. *Local Treatment of Acute Gout.*—The extreme pain attending acute gouty inflammation may, it appears, be very quickly relieved by the application of pure spirits of wine. We witnessed a trial of this remedy by Dr. Goolden on a patient in St. Thomas's Hospital, who was suffering at the time agonizing pain in the foot, and the result was an almost immediate relief. Dr. Goolden informed us that he was in the habit of using it very frequently in private practice, and always with the most pleasing effect. He believed it to act by being absorbed, and not by mere evaporation. The mode of application is by a piece of lint saturated in the spirit, laid over the part, and then covered with oil silk.—*Med. Times and Gaz.* Nov. 12, 1853.

34. *Local Applications in Chronic Gout and Rheumatism.*—The ancient remedy of soda poultices for chronic gout appears to have fallen into very unmerited disuse. We have seen lately numerous cases in which very great apparent benefit was produced by them. The quantity of soda used was one drachm, mixed with a common bread poultice, and applied hot over the affected joint every night. Many cases affording illustrations of the good effects resulting from iodine painting of joints affected with chronic rheumatism, have recently been under the care of Dr. Bennett, in St. Thomas's Hospital. This remedy, also, although long known, does not appear to be so generally used as it deserves. It was, we believe, a great favourite with the late Dr. Percira.—*Med. Times and Gaz.* Nov. 12, 1853.

35. *Malformation of the Heart without Cyanosis.*—Dr. OGLE exhibited to the Pathological Society of London (Nov. 15, 1853), a case of congenital malformation of the heart. The pulmonary valves were diseased, and the right ventricle hypertrophied, in order to overcome the obstruction. There was a communication between the ventricles. The aortic valves also were diseased. The patient was a girl who had come under his care with hysterical symptoms, and who afterwards became delirious and died. There was no cyanosis.

Dr. Peacock thought the absence of cyanosis an interesting feature in the ease, but that the hypertrophy of the right ventricle would explain it.—*Med. Times and Gaz.* Nov. 26, 1853.

36. *Malformed Heart with Cyanosis.*—Mr. HUTCHINSON exhibited to the Pathological Society of London (Nov. 15, 1853) the malformed heart of a cyanotic girl, aged eleven years. The bulk of the organ consisted of a much enlarged left ventricle; both auricles were, however, perfect in size and form, and there was in the upper part of the front wall of the left ventricle a small chamber, evidently the undeveloped analogue of the right. This latter cavity was farther divided into two by a muscular septum of some thickness, situated eight lines beneath the attachment of the pulmonary semilunars, and separating the infundibular portion from the sinus of the ventricle. The infundibular part was extremely small. In the centre of this abnormal septum was a minute opening, only admitting of the passage of a small probe, through which the entire pulmonary current of blood must have passed. The pulmonary artery and the aorta were of natural size; the ductus arteriosus closed; the septum of the auricles perfect, that of the ventricles almost wholly deficient. Although not structurally an example of a single or reptile's heart, yet practically it had been so, with the additional inconvenience of an extreme impediment to the passage of blood into the pulmonary artery. From the deficiency of the ventricular septum, both auricles had communicated with the left ventricle, and by the latter the pulmonary as well as the systemic circulation had been carried on. During life, the child had been an example of very severe blue disease, stunted in her growth, never able to take exercise, or to maintain her temperature without the aid of artificial warmth. Mr. Hutchinson stated, that he was indebted to the kindness of his friend Mr. Keyworth, of York, for an opportunity of exhibiting the specimen.

Dr. Peacock remarked on the points of analogy and difference between this ease and that brought forward by Dr. Sieveking at the last meeting of the Society; and observed, that all these cases seem to show that obstruction to the circulation, during foetal life, is the cause of all these malformations.—*Med. Times and Gaz.* Nov. 26, 1853.

37. *On the Signification of the Milk-crust in Infants.*—Dr. F. VAN WILLEBRAND observes, that, both among the profession and the public, the idea prevails that the milk-seab is innocent and curable, and that it is the result of an effort of the system to throw off some acrid scrofulous humour by the skin. He denies the scrofulous nature of the above-mentioned disease, and proceeds to offer some remarks upon scrofulosis generally.

Recent investigations, and especially those of Lebert (*Traité des Malad. Scrof.*), have shown that in scrofula there is no peculiar matter or deposit, nor any special disease of the organs; and that, therefore, we are not justified in regarding scrofula as a specific disease. The glandular swellings upon the surface of the body, which have for so long been regarded as characteristic of scrofula, are, as proved by Andral, Velpeau, and Rokitansky, only a secondary affection, which arises from irritation in parts from which the absorbent vessels proceed, but which may continue long after the cessation of the local irritation. As a cause of glandular swellings in the neck, the author mentions irritation of the mucous membrane of the mouth by dentition; in older children, by carious teeth; irritation of the Schneiderian membrane; chronic conjunctivitis, inflammation of the mucous membrane of the ear, inflammation of the brain (according to Griesinger), and especially cutaneous eruptions of the head and face. The peculiar ramifications of the lymphatic vessels in the places here enumerated

explain the frequent occurrence of glandular swellings of the neck in consequence of affections of the skin, in which the different degrees of irritability of the lymphatic system exercise a most important influence. As instances of glandular swellings occurring at a distance from the local irritation, the author mentions swellings in the axilla, consequent upon vaccination, and remarks, that he has seen glandular swellings, terminating in suppuration, in the neck from the same cause. As, however, a morbid irritation once excited in the lymphatic system may spread after the cessation of the local cause, so may glandular swellings continue or increase after the cicatrization of the vaccine puncture; a fact which the author affirms he has often witnessed. He considers these swellings in no way connected with the protective influence of vaccination; on the contrary, he pronounces them the results of a morbid process complicating vaccination, and he deems it best for the health of the child to make as few punctures in the arm as possible, because many of them tend to excite glandular swellings. Although these enlargements of the cervical glands depend, in by far the greater number of instances, upon no corruption of the blood, but are secondary, and excited by different external causes, yet it cannot be denied that morbid conditions of the lymphatic system, let them proceed from whatever cause they may, exert a prejudicial influence upon the composition of the circulating fluid. All investigations, however, upon the deviations from the normal constitution of the blood in scrofula are valueless, because our conceptions of the disease are too fluctuating and arbitrary.

From the preceding, the author concludes that the milk-scab is not to be regarded as dependent upon scrofula; he rather supports a totally converse view to that, which attributes a purifying effect upon the blood to these cutaneous eruptions. He thinks that most eruptions of a chronic character proceed from external causes, and he especially mentions eczema and impetigo. As external causes, he enumerates deficient attention to the skin, both dirtiness and excess of cleanliness, especially constant bathing in hard water, by which the integument loses its oil, so necessary for its lubrication and protection; rubbing and irritation of the skin by rough coarse hands. The custom, in Finland, of washing and dressing children before a stove is to make up for the want of the sun's warmth. The author has often noticed the first appearance of an eruption after exposure of the child to a sharp raw air. As internal causes, he speaks only of dentition and disturbances of the digestive organs. The spread of eruptions he explains by the ramifications of the lymphatic vessels under the skin. The effect of prolonged irritation is to cause congestion and inflammation of particular spots of integument, upon which vesicles, and pustules, and other simple forms of skin disease may appear. For an example, he brings forward the itch; the occurrence of eczema, after the application of blisters. No hypothetical acrid state of the blood is allowed by him under any conditions. All Dermo-pathologists agree that this eruption—viz. the milk-scab—so long as it is of limited extent, may be cured without harm, and, indeed, must be cured. But, when the disease has existed for a long time, its sudden cure may seriously disturb the organism. The author mentions, as instances of what may ensue, inflammatory affections of the mucous membranes, especially those of the eye and ear; catarrh of the air-passages or of the alimentary canal, difficult of cure. He thinks that chronic cutaneous affections of the head confirm the disposition to congestion of the brain and its consequences in young children; but he does not consider it yet proved that the external inflammation is directly propagated to the dura mater by the freely anastomosing vessels of the cranium, which pass from the pericranium to the parts within the skull. Finally, such widely-diffused eruptions bring on disturbances in the digestive organs—a statement which is confirmed by the observation that the *vasa chylifera* are inactive in proportion as the external integument is coated with a varnish, or any other application excluding the air. The practical rule in these diseases, to attend to the functions of the digestive organs, appears well grounded. The blood may become more serous in consequence of such digestive disturbances, and hence comes the tendency to watery effusions, oedema, etc. They may take place upon the brain or the lungs, and with imminent peril to life; most commonly in the latter organ, and in the advanced stages of cutaneous disease.

Œdema of the lungs often alternates with hydrocephalus in children. The author does not consider it proved that the speedy cure of an eruption is attended by risk of such watery effusions. At all events, no such case is recorded by Hebra, although he used every means to produce the rapid clearance of the skin. But the author attributes Hebra's success to the custom of putting the patients into warm baths, or employing wet dressings, as is now the custom in some hydropathic establishments. He never employed salves or unctuous applications, believing that their constituent parts could become absorbed and act injuriously.—*Med. Times and Gaz.* Nov. 12, 1853, from *Finstra Läkare Sällskaps Handl.* Bd. 4.

38. *Discharge of Hydatids in the Urine.*—JOHN SIMON, Esq., Surgeon to St. Thomas's Hospital, relates (*Lancet*, Sept. 24, 1853), the following case in which echinococci were discharged in the urine.

"W. S.—, aged forty-four, an out-door labourer in Folkestone harbour, began about two years ago to suffer symptoms of his present disease.

"Previously, he had considered himself quite healthy, having had no severe illness within his recollection. For the last four or five years, however, he seems to have had the habit of passing gritty urine (probably with crystals of lithic acid), and has had occasional stiffness in a knee and shoulder. Never to his knowledge has he discharged any worms from the intestinal canal, or had any signs of their presence there. His occupation has exposed him to various kinds of weather, but his habits appear to have been moderate and careful.

"Two years ago he began, and has ever since continued, to experience occasional severe pain, shooting sharply across from one hypochondrium to the other. This 'pain in the ribs,' as he called it, would often be excited by strong exercise—would be much felt, for instance, while he was working a heavy hammer, and it would recur in paroxysms several times during a day. Though the stabs of pain cut across from one side of his body to the other, affecting both of them, the left hypochondrium seems to have been regarded as their starting-place.

"Thus matters had gone on for about six months, when he was suddenly seized with acute sufferings, such as might have belonged to the passage of a calculus from the right kidney. There was the well-known sharp pain running through the right iliac region to the groin, testicle, and thigh, accompanied by spasms of the cremaster and extreme irritability of the bladder. At the end of six hours this attack terminated in his passing, with some effort and probably for the first time (what may now be assumed to have been) a single hydatid vesicle, associated with some of his ordinary gravel.

"Nine months afterwards he underwent a similar attack, the paroxysm lasting for two hours, and resulting, as before, in the discharge of a single (presumed) hydatid, with gravel, and perhaps (as the urine was discoloured) some blood. The symptoms were again referable to the right kidney.

"In both of these attacks he was out of medical observation; they can therefore be fully interpreted only by what occurred on a third occasion, when I was able to verify the nature of the discharge.

"This attack began on July 21st, when he was again seized with extreme pain in the course of the right ureter, extending to the groin, testicle, and thigh, with frequent micturition and with contraction of the cremaster. For forty-eight hours these symptoms continued with the utmost severity; they then somewhat subsided, and in their milder form, with occasional exacerbations, continued for another week, at the end of which time a considerable discharge of hydatid vesicles took place—probably as many as could be piled in a tablespoon, and varying from the size of a filbert downwards. In examining these, I found swarms of perfect echinococci in different stages of growth, together with innumerable hooklets of similar parasites dead and decomposed at some earlier period.

"During the ten days for which this paroxysm lasted, the bladder continued exceedingly irritable, and there was likewise (especially during the earlier days) some general disturbance and feverishness; but the belly was not tender

on pressure, nor was there any vomiting. No inflammatory products were admixed with the urine.

"Four days after the large evacuation, a single hydatid vesicle escaped, with very little distress to the patient.

"From that time to the present he has been well. The stabbing pain across the hypochondria (which had never left him for two years) has been very considerably lightened; he speaks of it as 'not more than a tithe' of what it has been at any time since his first suffering.

"Specimens of his urine, which I have examined during the last ten days, contain no trace of animalcules, nor any other morbid appearance than some crystals of oxalate of lime. With careful exploration of the abdomen, I have been unable to detect, either about the right kidney or elsewhere, any morbid induration or tumour."

SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

39. *Treatment of Aneurism by Compression.*—In some of the recent numbers of the *Medical Times and Gaz.* (Nos. for 29th Oct., 5th and 12th of Nov. 1853), there are reported twenty-five cases of aneurism recently treated by compression. This method has evidently won favour with the London surgeons, as is proved by the fact that, in all these cases, with but one exception—and in that there were very conclusive reasons against its employment—it was resorted to in the first instance. The result was highly satisfactory in most of the cases. We shall present the details of some of these cases.

40. *Large Popliteal Aneurism cured by Compression, employed, with much Interruption, for Five Months.*—Jane B., aged 31, was admitted into St. George's Hospital, under the care of Mr. PRESCOTT HEWETT, Jan. 17, 1852, with a large aneurism completely filling the right ham. Pulsation and expansion were very evident throughout the sac, which was very soft, and could be easily emptied. The whole tumour was very painful when handled, and at times there were severe shooting pains down the limb.

The patient, a servant of all work, with an anxious countenance, and of a spare frame, but very active habits, had first noticed the swelling about a fortnight previous to her admission into the hospital; it was then small, but her attention had been drawn to the spot by the great pain she felt there. No cause could be assigned for the appearance of the disease; but pain, more or less severe, had existed in the calf of the leg for several months. No disease was detected either in the heart or in the large vessels.

Ordinary diet.

A few days after the admission of the patient into the hospital, two instruments were applied—one in the groin, and the other in the lower part of the thigh. They were alternately made use of; but the pressure was never sufficient to stop the circulation in the sac.

The instruments could only be borne for a short time; but even in two days the sac could no longer be completely emptied. It became necessary, however, to suspend all compression, as the patient was very fidgety and hysterical. Menstruation shortly afterwards made its appearance.

The instruments were reapplied on the 8th of February; but it was found, after a few days, that, notwithstanding all possible care, the skin, which was exceedingly irritable, had begun to vesicate in one or two places. These vesications were followed by slight ulcerations; and, as the patient was still very nervous, it was thought advisable to lay aside the instruments for a few days. At this time, there was much less pain about the aneurism itself, which appeared to be somewhat contracted; but there was a very painful and burning sensation over the knee-cap.

The skin having recovered itself, compression was again resorted to. Slight pressure only was made, and the patient gradually became accustomed to the use of the instruments ; but they were obliged to be left off again at the time of menstruation, owing to the irritable condition of the patient, and at her own urgent request. Thus matters went on for some little time, the sac contracting but very slowly, and the deposition of fibrin being but very gradual ; there was, however, little or no pain in the tumour, and the patient appeared to be improving in general health.

A weight applied in the groin was subsequently substituted for the pelvic instrument, as the patient preferred it ; and she was put upon low diet, the pulse being rather full, and the countenance florid. This plan was fully carried out for some time ; but it did not appear to have much effect on the tumour. The sac, although somewhat contracted, was still large and easily compressed, and pulsation still remained evident throughout its whole extent. Notwithstanding these apparently slight results, it was determined that compression of the artery should be persevered in ; the patient herself being most anxious that no operation should be resorted to. Pressure was therefore kept up alternately, by means of the weight in the groin, and by a ring tourniquet in the lower part of the femoral ; but it was always found that it was necessary to lay aside all mechanical treatment at each menstrual period.

Towards the end of May, some enlarged articular branches were observed running over the inner condyle ; the sac was evidently less in size ; it was much more solid, and all pulsation could be easily controlled by pressure on the ham. Direct pressure was therefore made upon the tumour, and a bandage applied to the lower part of the limb ; but this was left off after a few days, as it became painful, and as little or no benefit appeared to be derived from it.

At the latter end of June, a new nurse having been appointed to the ward, the case was very closely watched, and the instruments were kept constantly applied. The patient again complained of intense pain in the cap of the knee, and of a burning sensation down the leg. This went on for two or three days, and, on the 1st of July, all pulsation suddenly ceased in the tumour, which, when examined, was found to be perfectly solid, and of the size of a large egg. Slight pressure was kept up for a day or two, after which all mechanical treatment was abandoned. In a few days, she was allowed to get up, and, after some little time, as the tumour was rapidly diminishing in size, the patient was sent into the country.

The long period which the treatment occupied in this case may, in some measure, be explained by the natural irritability of the patient, and by the light manner in which she viewed the disease. Once relieved from the great pain she had been suffering, she not unfrequently relaxed the pressure, and, at one time, it was found out that, during the temporary absence of the nurse, she removed the instruments and walked about the ward. It was then represented to her, that, unless cured by compression, she would certainly have to undergo an operation ; this had the desired effect, and the plan of treatment was subsequently fairly carried out.

After her return from the country, this patient applied for the situation of nurse in the hospital, and, at the present time, she is doing the duty of night-nurse. She is in excellent health, and is able to go through all her work remarkably well, and, excepting some slight thickening in the popliteal space, all traces of the aneurism have disappeared.—*Med. Times and Gaz.* Oct. 29, 1853.

41. *Aneurism of the Popliteal Artery—Treatment by Compression—Cure on the Eleventh Day.*—William Gilbert, aged 57, a carpenter, spare and tall (nearly six feet two), was admitted into Guy's Hospital, under the care of Mr. Cock, Nov. 15, on account of an aneurism in the right popliteal space. He had first noticed it two months previously, when it was about the size of a walnut, but as it gave him little or no inconvenience, he had not sought medical advice until quite lately, and it had now attained the size of an egg. Its pulsations were strong, and equal in all directions, and gave to the finger the impression that they were conveyed through coats of moderate thickness.

He stated that he had always enjoyed good health, with the exception of occasional slight attacks of lumbago; that he lived temperately, and had been accustomed to considerable exertion. For some years he had been subject to a sense of pain behind the sternum, on taking active exercise, attended also with slight dyspnoea, the liability to which had decidedly increased. On attempting to feel his pulse, it was discovered that at the right wrist the artery could be readily found as a soft cord, of considerable size, but that it yielded either no, or the very feeblest, pulsations. The same was the state of the right common carotid and its branches, none of which pulsated in the least. The left common carotid was very large, and beat with a powerful pulsation, while the left radial artery afforded an example of a full, soft, and rather feeble pulse. In no situation could any signs of ossification be detected in the arteries. The impulse of the heart was normal, and its sounds, though rather sharp, were heard distinctly, and free from bruit in all parts, excepting in the middle of the sternum, a little above its base, where a very faint murmur, synchronous with its first sound, became audible. This murmur increased in intensity on passing towards the left clavicle, and beneath its scapular third was extremely loud; it was also feebly heard beneath the right clavicle. On being questioned, the patient stated, that for some years his right arm had been getting weaker than the other, and that he had been much troubled with loud ringing sounds in the right ear. There was not any very perceptible difference in the muscularity of the two arms.

As the patient appeared to be a quiet and sensible man, on whose assistance in the management of his own case some reliance could be placed, Mr. Cock decided to attempt the cure by means of compression. The man was accordingly directed to keep in bed, and to have a nutritious, but moderate meat diet, with as small an allowance of fluid as possible.

On November 24, the screw compress was applied to the femoral artery in the upper third of its course, the pad being screwed down so tightly as nearly, but not quite, to suspend the flow of blood through the tumour. The patient was furnished with a heavy cylinder, such as is ordinarily used for that purpose, and directed to unscrew the apparatus when its pressure became too painful, and to place the weight over the artery where it crosses the brim of the pelvis, thus changing the part at which the compression was applied.

During the first week, the inconvenience produced by the pressure was so great that he was obliged to alternate between the screw-pad and the weight every twenty minutes. His sleep was consequently obtained only by very short instalments, and although his general health in other respects continued good, yet the want of rest induced considerable restlessness and disturbance of the nervous system. The skin having become excoriated at the place where the pad had been at first placed, Mr. Cock altered its position to the middle of the thigh, and ordered the application of zinc ointment to the abrasion.

On December 10, as during the past week the force of pulsation in the tumour, when the pressure was taken off, had been very slight, and for five days quite wanting, Mr. Cock ordered the apparatus to be discontinued. The tumour was now much diminished in size and felt quite solid; it was not tender, and never occasioned pain. Running over its centre was the trunk of a small artery, the pulsations of which were very distinct. The man appeared to be in good health; he had borne the pressure with much less inconvenience during the latter part of the treatment than at first, and only twice during the whole time had it been necessary to exhibit opiates. His diet had been meat to dinner, and bread and butter morning and evening, with four small cups of coffee per day as the only diluent.

20th. Ten days having now elapsed since the suspension of pressure, the tumour still continuing quite free from pulsation, Mr. Cock allowed him to get up, the parts being supported and confined by a bandage. The artery before noticed as running over the original tumour is increasing in size; there are one or two others at the sides of the swelling, probably enlarged anastomotic branches.

26th. The cure appearing to be complete, he is discharged. The tumour has diminished to the size of a small walnut, and is quite hard.

The physical phenomena of his chest continue precisely as before. Dr. Hughes,

who at Mr. Cock's desire has examined the case, expresses his opinion that there is aortic disease, but as it does not give rise to any distressing symptoms, there appears little object for attempting anything in the way of treatment.

Oct. 11, 1853.—Mr. Cock informs us that he has recently heard a very good account of this patient's condition. He is now regularly at work, has had no indications of return of the popliteal disease, and does not suffer materially from that within the chest.

We append to this case the following brief but very sententious clinical observations which it elicited from Mr. Cock:—

"The want of success which I have seen attending the application of pressure in several previous instances, may, I think, fairly be ascribed to certain causes and circumstances, the regulation of which is in great measure under the control of the surgeon and his patient. Both parties must combine to carry out certain principles and practices, without the observance of which a favourable issue can hardly be expected. The patient should be both willing and intelligent; he should thoroughly understand the mode and *rationale* of the practice about to be adopted, so as to be able to adjust and regulate the apparatus in the unavoidable absence of his medical adviser. His wishes and feelings should be engaged in the success of a scheme, the beneficent intention of which is to save him from the more dangerous, although less tedious operation by the knife.

"It not unfrequently happens that a man comes into a hospital for the special purpose of having his artery tied, as he has been told that this is the only means of cure. A prize-fighter was some years ago under my care with popliteal aneurism. I in vain tried to persuade him to submit to compression; the apparatus was thrown aside as soon as it became irksome. He had no fear of the knife, and at his urgent request I tied the artery, with a favourable result.

"One of my colleagues had a man under his care who repudiated compression, and declared he would neither eat nor drink until the vessel was ligatured. He kept his resolution long enough to induce compliance with his demand.

"An important item in the treatment is the regulation of the patient's diet. A moderate, perhaps sparing, quantity of nutritious solid food, of whatever character may best suit his taste and habits, with the smallest possible allowance of unstimulating fluid, seems to me best adapted for the purpose. I place much stress on the abstinence from drink, as I believe it will be allowed, that a quantity of even the blandest fluid received into the stomach, seldom fails to add to the volume of the blood, while it accelerates the action and increases the impulsive force of the heart.

"Much depends on the first adaptation of the instrument; and I think it would in most cases be judicious to use little or no positive pressure for a day or two, or until the patient has become reconciled to the inconvenience and constraint which the apparatus produces. Pressure should be applied with much gentleness, and increased most gradually. Moreover, as a principle, which I am aware cannot always be carried out, I would say, that the screw should never be turned so tightly as to require subsequent relaxation or removal, except for the purpose of obtaining ease by transferring the pressure to another locality. I have reason to believe that much of the pain, and that of the most unbearable character, is produced by undue pressure on the vein, causing impediment to the return of blood, and consequent congestion. This involves a difficulty not easily overcome, as the same instrument whose pressure diminishes the caliber of the artery must necessarily exert more or less influence on the contiguous vein; but the injurious effects may, in great measure, be obviated, first, by moderating the force applied until time has been given for the collateral venous channels to come into play; and, secondly, by raising the limb and placing it in such a posture as may best accord with the feelings of the patient. Much depends on the perfection of the instrument, and its capability of being easily regulated and controlled by the patient, without shifting the position of the pad over the artery. Much also may be expected from keeping the patient in a tranquil and hopeful state.

"Lastly. All unnecessary interference with the patient or the apparatus; all handling or squeezing of the sac, by those whose curiosity exceeding their dis-

cretion, renders them anxious to ascertain what change may have taken place; all relaxing of pressure to see the amount of success, disturbing the progress of events, interfering with the processes of nature, and not unfrequently 'undoing all as all had never been,' should be strictly interdicted. No two cases of aneurism are probably exactly similar; and whatever principles we may propose or lay down for their treatment, they must be modified according to circumstances.—*Med. Times and Gaz.* Oct. 29, 1853.

42. Popliteal Aneurism—Treatment by Compression—Cure on the Thirty-second Day.—William Duckworth, aged 37, a warehouseman, accustomed to much standing, and running up and down stairs, was admitted into Guy's Hospital, under the care of Mr. Hilton, July 20, 1853, on account of an aneurism the size of a hen's egg in his left popliteal space. The tumour pulsated very forcibly, was definitely circumscribed, and equally soft and smooth in all parts; a bruit was heard over it synchronous with the pulse, and both pulsation and bruit were arrested by making pressure on the femoral artery. The man stated, that he had first felt pain behind the knee six weeks previously, and that he had discovered the presence of the swelling a few days afterwards. He was an intelligent person, quite willing to submit to and to aid in any plan of treatment thought best for him; although rather stout, yet his muscular system was flabby and soft. It did not appear that the tumour had materially increased in size since his first discovery of it, and it had occasioned him very little pain.

Treatment was commenced on the 21st, at eight in the evening, when Mr. Hilton adjusted a clamp and pad over the junction of the superior and middle thirds of the femoral. It was screwed tightly down, and the pulsations of the aneurism quite arrested. The man was ordered to have a full meat diet, without any stimulant, and to restrict himself to as small a quantity of fluid as possible. To take fifteen minimis of the tincture of digitalis every four hours.

July 22 (2d day).—The pain produced by the pad was so severe, that after about two hours the apparatus had to be removed. This morning Mr. Hilton again applied it, and furnished the man with a heavy cylinder, directing him to alternate the pressure by the two instruments, but never to be without one of them in use. To continue the same medicine and diet.

23d (3d day).—Has slept badly, in part from pain, and in part from mental anxiety. The pressure has produced tingling and numbness down the leg, with slight swelling about the knee.

24th (4th day).—The thigh being fat, it has been found necessary to screw the pad very tight in order to keep up sufficient pressure, and the skin has consequently become chafed. The tumour is certainly firmer than it was. The skin is to be protected by dusting it with powdered oxide of zinc, and the apparatus is to be frequently moved from part to part.

27th (7th day).—The patient has not exceeded a pint of fluid per diem since the treatment was commenced. His health continues good, and he now gets a fair amount of sleep, though he complains of feeling stiff and tired. The tumour hardens, and is, perhaps, a little less in size than it was. The skin of the thigh is still inflamed and vesicated.

August 4th (15th day).—Owing to the fat and flabby condition of the thigh much difficulty has been encountered in keeping up constant pressure of sufficient force, and the cure appears to be delayed on this account.

6th (17th day).—The man is this morning somewhat feverish; the bowels have not acted for several days. To take a calomel and opium pill (gr. ij, and gr. ss) and a dose of castor-oil afterwards.

7th (18th day).—The medicines have acted, and he is much better. The clamp apparatus is to be removed, in order to have the hinder pad altered. Pressure is to be kept up constantly with the cylinder.

10th (21st day).—The skin is so sore, that it has not been thought advisable to reapply the clamp. The cylinder is kept in constant use; but it is probable, that during sleep, it often gets displaced. The tumour is, however, becoming much firmer, and its pulsations, though still strong, are diminished.

13th (24th day).—Steady progress. The medicine (digitalis) was omitted

yesterday; it has throughout kept the pulse quiet, though not markedly depressed. The same diet is still to be persevered in.

21st(32d day).—Pulsation in the tumour, which has been gradually decreasing day by day, has now quite ceased. The swelling is not now larger than a pigeon's egg, firmly resisting, and free from tenderness. An artery of some caliber may be felt crossing over the sac. The pulse in the posterior tibial cannot be felt. Throughout the treatment, the limb has never perceptibly lost temperature; it is perhaps, a little larger than the other, but no marked œdema exists. Since August 7, the cylinder only has been used as a compressor; it is to be continued for a few days longer.

31st.—The entire limb has been bandaged in flannel, and supported to the neck by a long sling, and in this way the patient has been allowed to move about the ward with crutches.

Sept. 6.—The tumour is still farther diminished in size, and continues quite solid. During the last few days the man has been walking about, and occasionally bearing his weight on the affected limb. He is discharged.

Oct. 26.—The man is now quite well and at his usual employment.—*Med. Times and Gaz.* Oct. 29, 1853.

43. *Popliteal Aneurism—Treatment by interrupted Compression—Cure in Ten Weeks.*—Henry Jarman, aged 32, was admitted into St. George's Hospital, under the care of Mr. PRESCOTT HEWETT, on the 1st of August, 1853, with a large popliteal aneurism occupying the lower part of the right ham, and bulging downwards over the gastrocnemius muscle. All the signs of an aneurism were well marked. When compression was made on the femoral, the sac became perfectly soft and flaccid, so much so that it could scarcely be felt; but, when filled, it appeared to be of the size of a large orange, and oval in shape. The tumour was excessively painful when touched; and darting pains every now and then started from the ham down the leg and ankle. Well-marked œdema existed about the limb, from the knee downwards.

This man had applied at the hospital as an out-patient, not knowing what was the matter with him. Five weeks previously, he had, for the first time, felt some stiffness in the right ham, and shortly afterwards he discovered a swelling there, which was "beating." This swelling had gone on increasing; and at times had caused him intense pain, especially at night. He had never met with any accident, but was often obliged to lift very heavy weights. A baker by trade. Although pale, and of a spare habit, with a careworn appearance and a trembling hand, he had not suffered from illness, and had always led a regular life. No disease was detected either about the heart or in the large vessels; but the pulse was very weak. Several large glands and a large irregular cicatrix of some years' standing existed in the right groin.

He was put on ordinary diet, and, as he suffered intense pain in the limb, he was ordered a composing draught every night.

For the first few days after his admission into the hospital, this patient was so nervous that it was thought advisable to delay doing anything until he had become accustomed to the ward and to the compressing instruments.

A weight was for the first time applied to the groin on the 7th of August; but this could be borne for two hours only, owing to the excessive pain which it caused in the sac and in the leg.

On the 8th, the pressure was resumed, and kept up between three and four hours consecutively in the groin; but he was then obliged to give it up again, on account of the great increase of the pain in the ham and in the ankle; there was little or no pain, however, at the point where compression had been made.

On the 9th, the clamp was applied to the thigh at Hunter's canal, and borne for some time; then the weight was applied to the groin; but, in whatever way the pressure was made, it always gave rise to a great increase of the pain, both in the sac and in all parts below it. On examining the tumour, it was found to be firmer already, for the sac could no longer be emptied. There was less pain about the sac when it was handled, and the œdema of the limb was also much less. The man had now become accustomed to the use of the instru-

ments ; and, as he was found to be intelligent, and anxious to carry out the plan of treatment, he was left to regulate the pressure himself.

On the 20th, the tumour was decidedly less in size, and much more solid ; there was but little pain remaining either in the sac or in the leg, and there was little or no oedema. The patient slept well, felt quite comfortable, and the opiate draught had been left off for two nights. During the preceding ten days, he had managed the apparatus for himself, having a "Carte's compressor"^{*} fitted to the thigh, and alternating its use with that of the cylinder-weight applied in the groin. He much preferred the former, having been able to bear it with less pain, and for longer periods. Altogether, the pressure had been kept up for about six hours daily, at different intervals, and often for two hours or more during the nights when he has been awake ; but he had made a practice of always removing the instrument when going to sleep. The pressure had been applied so as to allow only of a feeble circulation through the sac. There was neither excoriation nor redness about the skin, the instrument having been shifted from place to place along the course of the artery.

On the 26th, the sac was firmer, and the pulsation less distinct; two small arteries were detected running over the back part of the sac, in a longitudinal direction. In the previous night, after having had the instrument on for several hours during the day, the patient had been suddenly seized with violent pain in the leg and foot ; he was asleep at the time, and had left the instrument off for about three hours. The pain was so great that he was obliged to get up and rub the limb, when, to his surprise, he found that all pulsation had suddenly ceased in the sac ; the pain continued for several hours, during which time he could feel no pulsation in the sac ; but the latter afterwards gradually made its appearance again, and in the morning it was very evident.

By the middle of September the sac had become so much contracted, that it could scarcely be felt when the limb was flexed ; the pulsation, although slight, could still be felt over a small space at the lower and outer part of the ham. The collateral vessels at the back of the sac were larger ; there was no pain, and the parts could bear handling without any inconvenience. Compression had been kept up steadily for several hours daily, at different intervals, but the instruments had always been taken off during the night.

Being weak and languid, he was, on the 1st of October, ordered a pint of porter daily ; and on the 8th it was observed, that the pulsation still remaining in the sac could be readily controlled by direct pressure in the ham, and that without any pain. Under these circumstances an air-pad was placed in the ham, and the leg and knee were carefully bandaged ; the ring-tourniquet was still applied to the femoral. A hard pad was subsequently made use of instead of the air-pad, and the knee was firmly bandaged, so as to check all pulsation in the sac. This plan of treatment was carried on for several days, and on the 18th, when the patient removed the pad for the night, as the tumour was very painful, no pulsation could be detected in the sac, but it reappeared in a short time ; it was very feeble, however, and there was great pain down the leg and in the ankle. The tourniquet and the pad in the ham were reapplied on the following morning, and compression kept up for several hours ; and in the afternoon of the 19th, all pulsation finally ceased in the sac.

The ring-tourniquet was kept lightly applied on the 20th, but all compression was removed on the 21st. For the last two weeks the patient has been up. The aneurismal sac is now very small, and quite solid. Several large collateral vessels can be detected running over the back of the sac, and over the inner condyle of the femur. The man is in good health.—*Med. Times and Gaz.* November 5, 1853.

44. *Large Popliteal Aneurism—Treatment by Compression—cured in six Weeks.*—George Hale, an ostler, aged 42 years, was admitted into University College Hospital, under the care of Mr. Erichsen, September 19, 1853, having in the lower part of his left popliteal space a strongly pulsating aneurism, the

¹ A ring-tourniquet with elastic bands. For description, and an engraving, see *Medical Times and Gazette*, Aug. 9, 1851, p. 155.

size of a large fist. He had for about three months noticed a weakness about his left knee and ankle, but of the existence of the tumour he had only been aware for about three or four weeks, during which time it had rapidly increased in size, and been very painful. He was a moderately stout man, of temperate habits, and in good health. The pulsations of the tumour were very forcible, perceptible to the eye, and attended by a bruit; they ceased entirely, and the sac collapsed when firm pressure was made upon the femoral. The whole left leg was considerably larger than its fellow, but there was not sufficient oedema to cause pitting on pressure. The subcutaneous veins were much enlarged, and very tortuous. The most prominent part of the aneurism was about an inch and a half below the middle of the joint, and at this point the limb had a circumference of 16 inches.

The compression treatment was commenced on the 20th, by means of two of Signorini's tourniquets, applied so as to press, the one over the brim of the pelvis, the other in the middle third of the thigh, and alternately employed. During the first two days, the patient complained of much pain, and was not able to bear pressure sufficient to arrest the beating of the tumour; and the instruments had to be laid aside each night.

On the 23d, more efficient treatment was adopted, as he now became able to bear, without much inconvenience, the requisite amount of pressure; and from this time forwards it was found practicable to keep up, with a few accidental intermissions, constant pressure, night and day, sufficient to entirely arrest the circulation through the sac. The intermissions alluded to were occasioned by the apparatus sometimes getting displaced, more especially during sleep. The man, however, had great tact in readjusting it for himself; and the greatest credit is due to Mr. Turle, Mr. Erichsen's house-surgeon, for the assiduous attention which he devoted to the case, making it his duty to ascertain, at frequent intervals, both night and day, that the instruments were acting efficiently. The patient was put on a full meat diet, with an allowance of two pints of beef-tea daily.

On October 3 (the 13th day), Mr. Erichsen ordered that the diet should be closely restricted to the following allowance: Breakfast, four ounces of bread and a pint of milk; dinner, four ounces of bread, a chop, and a small quantity of water; tea, two ounces of bread and a pint of milk. At this time the tumour was decidedly harder, and less in size than at first.

On the 10th, the horse-shoe tourniquets, which had acted very well, were substituted by two of Dr. Carte's instruments, the application of which had been delayed, owing to some alterations necessary in order to fit one of them to the pelvis. The tumour was examined, when all pressure was removed, and it was found to have decidedly diminished in expansile force, to have become much firmer, and to be about two-thirds of its original size. The circumference of the limb was fourteen inches and a half.

On the 15th, but little progress had been made since last note; the patient had not been able to manage the more complex apparatus so well as he did the tourniquets, and on several occasions Mr. Turle had found the tumour beating forcibly. The skin had also become somewhat chafed from pressure. Although the prescribed diet had been strictly kept to, the patient's pulse continued strong and full. Mr. Erichsen ordered the limb to be enveloped in an elastic bandage, the tumour being protected by a pad of tow. Venesection to eight ounces.

During the night of the 17th there was so much pain caused that the man took off the apparatus entirely. He was, however, visited within an hour after by Mr. Turle, and the instrument again applied. On the following day, venesection to four ounces was again practised.

On the 22d, the man was again bled to four ounces; a draught containing five minimis of the tincture of digitalis was ordered to be taken three times daily, and a scruple of compound jalap powder every other night. On this day there was noticed a yet farther lessening of the expansile force of the tumour.

On the 26th, the bleeding to four ounces was again repeated. The immediate effect of this measure had, on each occasion, been to render the pulse rather quicker, more compressible, and a little jerking. The man had sometimes complained of feeling weak. The medicines regularly continued.

On the 29th, there was found, at the time of visit, slight beating in the tumour, but it ceased immediately on screwing down the pad a little tighter. Pulse 80, soft and full.

In the night of the 31st, owing apparently to the patient having turned in his sleep, and the pad having consequently slipped, the tumour was found pulsating sharply. The apparatus was at once readjusted.

Nov. 3 (45th day). The treatment, as last indicated, has been regularly persevered with. Last night the man states that he awoke with a peculiar sensation all over him, and, feeling alarmed, he unscrewed the tourniquet, and discovered that the tumour, which in the preceding evening had pulsated with usual force, had now quite ceased to beat. He readjusted the instrument, and soon after again fell asleep. To-day the tumour feels hard, and does not pulsate in the least when compression is removed. A vessel of some size may be felt crossing the sac. The dose of digitalis was yesterday increased to ten minims, and it is ordered to be continued. The patient does not feel any pain whatever in the limb.

On November 7, the instruments were finally laid aside, and the man allowed to leave his bed; he could walk about the ward, though with some sense of stiffness in the affected ham.

At the present time, November 11, the man is up regularly every day, and the tumour, which remains quite solid and hard, is gradually diminishing in size. Enlarged collateral vessels may be felt on both sides the joint, and also over the surface of the sac itself; there is feeble pulsation perceptible in the posterior tibial, but none at all in the anterior tibial or the dorsal artery of the foot.

We have extracted the above details from the notes taken by the dresser, Mr. White. The result of the case is probably in a very considerable measure due to the careful constitutional treatment which Mr. Erichsen enforced, and is, considering the very large size of the tumour, extremely satisfactory. Under the depleting measures pursued the man lost strength and colour considerably, but he is now fast regaining both. It must be noted, that the inconvenience caused was never so great as to require the administration of opium, and the man slept fairly almost every night. The swelling of the leg, so far from being increased, gradually diminished from the day of his admission. The compression was borne almost equally well in the groin and in the middle of the thigh, and at night the precaution was usually adopted of screwing down both pads.—*Med. Times and Gaz.* Nov. 12, 1853.

45. *Aneurism of both Popliteal Arteries—Cure of both by Compression in periods respectively of four and eight days.*—John Donovan, aged 29, a boot-maker, applied to Mr. Stanley, at St. Bartholomew's Hospital, on account of a beating tumour in his right ham, where, on examination, a soft, but forcibly pulsating aneurism, the size of a pigeon's egg, was discovered. He had only noticed the swelling for about a week, during which he had experienced some pain in the part, and the leg had become slightly swollen. On examining the opposite leg, another aneurism of nearly the same size as the first was found; of this the man had known nothing. It was situated quite in the lowest part of the popliteal space, lower down than that in the right limb. It appeared, on inquiry, that the man had for about a year been in the habit of sitting at work on a high wooden chair, with his knees pressed firmly back against the front edge of the seat, and with the left foot a little higher than the other. Agreeing so well as it did with the relative position of the tumours, Mr. Stanley stated that he had no hesitation in accepting this as the true explanation. By the continued irritation of pressure on the vessels, disease of coats had been set up until they became unable to resist the impulse of the current of blood within them. It was ascertained that the chair used was of unusual height, and quite different from those commonly employed by shoemakers.

The treatment was first adopted for the left. After trying in vain to adapt the Signorini tourniquets to the limb, so as to efficiently command the vessel, Mr. Stanley had an iron clamp made, with a broad splint fitted to one end, and a screw-pad to the other. This succeeded well, and for four successive days

(the place, of course, being varied) efficient compression was unremittingly kept up, and at the end the tumour was found to be quite solid. The instruments were retained in use for a day or two longer, and then laid aside. During the first day of pressure the limb lost temperature, and had to be wrapped in flannels. On the following day, however, some enlarged collateral vessels were found crossing the joint, and the two legs had an equal temperature.

An interval of ten days having been suffered to elapse, and the cure of the left appearing permanent, the treatment of the right tumour, which had in the mean time not altered in size or other condition, was commenced. The same clamp was used, but, as the man complained of much pain, it was not applied continuously. It was tried, with short intermissions, for four distinct periods of respectively 39, 24, 24, and 48 hours' duration, after the last of which the contents of the sac had become solid, and no pulsation returned. As in the former case, the instruments were continued in application for a few days longer, and very shortly afterwards the man left the hospital. Mr. Stanley informs us that he saw him some time subsequently, and that he continued quite well.

It appeared in this case that the collateral circulation was established with unusual ease and rapidity, for in both limbs, at the time compression was abandoned, pulsations could be felt in the tibial vessels. That this was really due to the establishment of collateral channels, and not to continued perviousness of the popliteal trunk, Mr. Stanley concluded from the circumstances, that the popliteal could not be felt to beat; that there were in each limb supplemental arteries of considerable size to be found crossing the joint; and that, from the kind of aneurism usually occurring in the ham, it was difficult to conceive of its cure without obliteration also of the popliteal artery.—*Med. Times and Gaz.* Nov. 12, 1853.

46. *Popliteal Aneurism treated by Compression—Cure on the Eighth Day.*—George Edwards, aged 24, an hostler, was admitted into St. Bartholomew's Hospital, under the care of Mr. LLOYD, May 4, suffering from periostitis of the tibia. He had been in the hospital under treatment for this disease nearly three weeks, when an aneurism was discovered in his left popliteal space, of which no history could be obtained. It was the size of a pullet's egg, pulsated forcibly, and presented all the usual symptoms of the disease. A preparatory treatment, which consisted in putting the patient on a sparing diet (without meat), and exhibiting a saline aperient mixture, containing the tincture of digitalis (m . xv), three times daily was adopted; and, on May 24, compression of the femoral trunk was commenced. The apparatus used was the ordinary clamp, which was applied at different parts of the thigh, and never with sufficient tightness to quite arrest the flow of blood through the tumour. Slow progress in solidification was made up to June 1 (the seventh day), on the morning of which day the compressing pad was readjusted, and screwed down with more tightness than before; still, however, not with so much as to entirely stop the pulsation of the tumour. The man, who had now become anxious for a speedy cure, had determined, as it afterwards appeared, to bear the pain, and he allowed the pad to continue in the same place as it had been put for twelve consecutive hours. On the following morning, the tumour felt solid, and pulsation had entirely ceased, but there was a large dusky bulla over the part where the pad had pressed. Subsequently, a deep slough, of about the circumference of half a crown, formed, and was separated from the surrounding tissues. No farther ill consequences attended the event; the sore shortly filled up and healed; the aneurism was permanently cured. The man left the hospital on July 10, quite well, the popliteal tumour having been reduced to very small dimensions.—*Ibid.*

47. *Popliteal Aneurism treated by Compression—Cure in Sixty Hours.*—William Presgrove, aged 36, a healthy and very muscular farm labourer, was admitted into the Nottingham General Hospital, under the care of Mr. THOMAS WRIGHT, August 4, 1853. In his right popliteal space was a strongly beating tumour, the pulsation of which could be felt for an extent of two inches in length

and one and a half in breadth, and over which a short bellows murmur was audible. Its margins could not be very distinctly felt. By pressure over the vessel at the pubes all pulsation could be arrested. There was no numbness in the affected leg, but it was oedematous to a considerable extent. The man stated that, with the exception of a single attack of rheumatic fever, he had always enjoyed excellent health. About eleven months ago, while hauling a large boat out of a lake, he had felt something suddenly give way in his ham, and afterwards considerable pain in the part ensued. He, however, continued at work during the following five weeks, after which he placed himself under medical care in the country.

August 12.—Compression of the femoral commenced; two clamps being applied, the one over the pelvis, the other in the upper third of thigh, and alternately tightened. The leg up to the knee has been carefully bandaged. The patient is on low diet, without restriction as to the amount of fluid.

13th.—Owing to the stupidity of the patient, who cannot be made to understand the management of the clamps, the pressure has been much interrupted during the night. The pulsation in the tumour is not diminished. No pain is complained of; there are no feverish symptoms, and the temperature of the two limbs is equal. Pulse 88. The thigh being very fat, it is necessary to screw the clamps very tight, in order to arrest the flow of blood.

15th.—Last night, a little before twelve, the patient discovered, while adjusting the apparatus, that the tumour had become quite solid and pulseless. This morning there is not the slightest impulse to be felt on firm pressure, and the mass is circumscribed and hard. He "feels as well as ever he did in his life;" has passed two very tolerable nights during the compression; has not required a single opiate, and has complained of but little inconvenience. He is directed to remain in bed, and, as a precautionary measure, to keep up gentle pressure for a day or two longer.

September 13.—Discharged from the hospital in every respect quite well, the aneurismal tumour being small and hard. He has been kept under care for the last ten days solely on account of an attack of urticaria febrilis, which has yielded to the ordinary treatment.—*Ibid.*

48. *On Suppuration of the Joints from Infection of the Blood.*—Mr. COULSON read an interesting paper before the Medical Society of London (October 15, 1853), in which he discussed the symptoms, nature, and treatment of a peculiar affection of the joints which comes on after amputation, puerperal fever, operations on the genito-urinary organs, &c. This disease consists of suppuration within the joints, probably of an inflammatory nature, and generally ending in death. Not long ago, it was divided into nearly as many diseases as it had exciting causes; but the author justly remarks that, whether of puerperal, traumatic, or other origin, the disease is one and the same; or, to speak more correctly, it makes part of one and the same constitutional affection. After having related some cases which illustrate the manner in which the disease may follow the introduction of a bougie for stricture, lithotrity, parturition, and glanders, the author proceeds to describe it, and commences with one of the most interesting and important forms, namely, that accompanying parturition. Mr. Coulson first, however, observes that the origin, the course, the symptoms, and the morbid anatomy of articular disease produced by purulent infection of the blood, are of a peculiar kind, different in many essential particulars from what are observed in any other form of disease of the joints. If the disease is regarded as a mere local affection, it is impossible to understand the general symptoms which accompany it, its cause, or its rapidly fatal result; for these are quite different from what is observed in the most violent cases of articular inflammation developed under ordinary circumstances. Everything, on the contrary, in the history of the disease, points to a special origin; its main features are always the same; and although many cases may be attended by symptoms which would seem to indicate a variety of origins, and justify a distinction into several forms, yet these symptoms will be found to depend on accidental circumstances, and not to vary more in individual cases than are found occurring in examples of other diseases, which depend, as this one does,

on contamination of the blood. The pathology of the disease is briefly but clearly given. The joints, which are affected during life, almost always contain more or less pus, and it bears no relation to the intensity of the local complaint, or to its duration. In many cases, purulent effusion takes place within a few hours after the first appearance of the local symptoms, and in many other cases with so little pain or tumefaction of the joint as hardly to attract attention during life. The synovial membrane, however, generally presents traces of recent inflammation, though not of a severe degree; it is more or less injected, yet the false membranes of ordinary synovial inflammation are never found, one of the characters being the production of pus in a rapid manner, with little or no inflammatory congestion of the tissues. In some cases the synovial membrane has been found quite free from all trace of vascularity or other lesion. This has been regarded as a proof of the non-inflammatory nature of the disease; but it seems to the author more rational to conclude that the injection of the vessels had disappeared after the secretion of pus, and it is known that purulent inflammation under certain circumstances is of a very evanescent character. In one case, the synovial membrane round the head of the thigh-bone was evidently injected before any effusion of pus had taken place, and it is easy to understand that this injection might have disappeared in a day or two, if the extremities of the capillary vessels had become modified by the changes which ensue on suppuration. The cartilages, ligaments, and other tissues composing the joint, are usually in a healthy state, for the disease is essentially a purulent inflammation of the synovial membrane. In many cases, the cartilaginous coverings of the bones are found to have been more or less eroded or absorbed, and in a very few examples the ulceration has involved the substance of the bone itself. The patient, however, is generally cut off before the disease proceeds so far. The periarticular tissues are often the seat of seropurulent infiltration, or of circumscribed abscesses; these are also found in the muscles of the limb, and sometimes with very extensive disorganization of the parts. Having thus pointed out the general morbid anatomy of the disease, Mr. Coulson proceeds to show that when it occurs in puerperal females it has generally been confounded by accoucheurs with puerperal fever or described as a distinct complaint. This is an error. Puerperal women are often attacked by purulent inflammation of the joints without any of the symptoms which really indicate puerperal fever; but the constitutional symptoms of the purulent infection on which the articular disease depends have been mistaken for those of anomalous puerperal fever, which they resemble to a certain degree. On the other hand, puerperal fever, as is well known, is frequently complicated with purulent inflammation of the veins of the uterus, pelvis, &c., and in such cases there may be secondary articular disease, excited not by the fever, but by the inflammatory condition of the venous tissues, which accompanies it as a complication. Here there is purulent infection of the blood, superadded to puerperal fever. The disease is a complicated one; the symptoms peculiar to each element become masked, and they may be readily confounded. Yet by remembering the course and symptoms of uncomplicated purulent infection, we generally find our way through a labyrinth which were otherwise inextricable. That purulent inflammation of the joints does not essentially depend on puerperal fever, but on some other condition, is shown by the fact that it occurs after abortion in the early months of pregnancy, when improper means have been employed to evacuate the uterus, and when nothing resembling puerperal fever occurs. Here there are all the essential symptoms of purulent infection followed by articular disease; and although these unfortunate cases, for obvious reasons, are seldom investigated after death, yet the symptoms during life leave no doubt of their identity with purulent infection of the blood. Having noticed the peculiar symptoms which distinguish this form of purulent inflammation of the joints, the author insists on the necessity of not confining the *post-mortem* examination to the affected joint, but extending it to other parts of the body. The true nature of the disease is then revealed; for circumscribed abscesses or purulent infiltrations are almost always found in the lungs, liver, kidneys, or brain, in the heart, in the cellular tissue or muscles, in the uterus or some of its appendages, and finally in the minute veins of the spongy tissue

of bones. It should also be taken into account that this and other forms of secondary and purulent inflammation of joints occur under circumstances quite different from those attending other forms of articular disease. General states of the constitution, such as those arising from gout, rheumatism, syphilis, scrofula, &c., have no influence here, nor can it be traced to any of the immediate causes of ordinary synovial inflammation, as external violence, cold, moisture, &c. It often attacks the healthiest individuals in the prime of life—after amputation of a limb, for example. Unlike other articular diseases of constitutional origin, it is never chronic, but always of the most acute character, and when connected with the puerperal state it may appear to be epidemic. In describing the symptoms, Mr. Coulson, with all authors who have written on the subject, alludes to the shiverings, which are one of the earliest symptoms of the disease. These are so severe, and recur in such a manner from day to day, as successive depositions of pus take place, that inexperienced practitioners have mistaken the disease for intermittent fever. The rigors continue sometimes for half an hour, and are followed by slight perspiration; they may recur at determined intervals, but generally cease on the second or third day, after which they appear at very uncertain periods, or are noticed no longer. The fever also may be mistaken for typhoid fever; but, as the author observes, no medical man accustomed to watch the slow development and gradual progress of true typhoid fever could be deceived by the points of resemblance. In a great number of cases the respiratory organs are involved; the breathing becomes irregular and accelerated in paroxysms; there is a dry hacking cough, with sub-crepitating râle, and in some few cases with the exhalation of a purulent odour from the breath. These paroxysms of oppressed and hurried breathing, with short dry cough, are extremely characteristic; they are very often preceded at each return by rigors, and the author considers them as indicative of successive depositions of pus in the substance of the lungs. It is easy to understand that the symptoms may be modified according to the peculiar circumstances under which the disease may have been developed in the first instance. It may arise, for example, after injuries of the brain, when the early symptoms will be complicated with, and masked by, those of cerebral irritation, or of actual inflammation of the meninges. In cases of this kind, the secondary deposit often occupies the substance of the liver to a great extent, and if the cerebral symptoms be absent or slight, the disease may be mistaken for an acute affection of the liver. As for the puerperal form, the author draws a distinction, which seems important for understanding the true nature of the disease. In many cases it appears as a complication of puerperal fever, especially of that form depending on uterine phlebitis, and then all the early symptoms are masked by those of the puerperal fever, from which it is almost impossible to separate them. But in other cases, although the woman has been recently delivered, she does not present the ordinary symptoms of the fever just mentioned; she appears to be doing well for several days; there is no tenderness or tumefaction about the lower part of the belly, but after a few paroxysms of shivering, with anxiety of countenance and acceleration of the pulse, the joints suddenly become painful, the tongue becomes dry, and the symptoms of purulent infection follow the course already described. In this uncomplicated state, the disease receives no peculiar stamp from the puerperal state, but presents exactly the same symptoms, and runs the same course as it does when affecting males after injuries to, or operations on, the genito-urinary organs. There is, however, this difference in the results; that the disease is of a much more fatal character in puerperal females than in males, a fact admitting of explanation from the circumstance of its being so frequently complicated in the female with puerperal fever, whereas in the male it arises from laceration of the urethra, irritation of that canal or of the bladder, and from other injuries which are not in themselves of a dangerous character. Puerperal synovitis in females recently delivered is a very fatal disease. Dr. Merriman, Professor Cruveilhier, and other writers, state that they never saw a patient recover. The author, however, quotes a case of recovery related by Mr. McWhinnie. The nature of the disease is next discussed, and on this point Mr. Coulson, after repeating the opinion which he gave many years ago in his work on *Dis-*

eases of the Hip-Joint, observes: "I would add, from farther experience, that I now believe the contamination of the blood to depend on the admixture of pus, as such, circulating with the vital fluid. The pus is not absorbed, but admitted directly into the circulation through some breach of surface." The following reasons may be adduced in support of this view: In the great majority of cases the formation of pus in some tissue primarily affected can be proved by dissection. A few cases are on record where no trace of pus could be discovered in those tissues supposed to be the primary seat of disease, and hence it has been argued that these cases are sufficient to justify the surgeon in removing the disease from purulent infection of the blood. To this it may be answered that the identity of course, symptoms, and results in various cases, naturally leads to the inference of an identity of immediate cause; and that as knowledge extends, under the influence of more careful and accurate *post-mortem* examinations, numerous cases are now shown to belong to this class of purulent infection; whereas, formerly, they were either inexplicable or referred to causes from which no rational explanation of their phenomena could be obtained; thus, Dr. Hall was unable to understand why the eye should become inflamed after parturition, and still less why inflammation of the globe should prove rapidly fatal. These points are now satisfactorily explained, by showing that such inflammation of the eye is not peculiar to puerperal females, but that it occurs in other cases of purulent infection. Again, the typhoid symptoms under which many patients sink after amputation, after trephining, &c., and the abscesses discovered after death in the lungs, liver, &c., did not admit of explanation until it was shown that suppurative inflammation existed in all these cases in the cancellous structure of the bones. The same remark applies to the few cases in which puerperal disease of the joints existed without any morbid alteration in the structure of the uterine veins. This exemption of the uterine veins has been considered sufficient by accoucheurs to reject the theory of purulent infection; but the surgeon not accustomed to confine his investigations to the uterus alone would not have remained satisfied unless every other organ in the pelvis, and the whole genito-urinary system, had been carefully examined. Inflammation of the mammary veins, or of those of the rectum, are just as capable of exciting purulent infection as inflammation of the vessels of the uterus or its appendages. If these views be correct, it is evident that the treatment of purulent synovitis from infection of the blood becomes a secondary consideration. The surgeon's chief efforts should be directed towards counteracting the poisonous condition of the blood which has given rise to the constitutional disease. The local malady is merely one of the effects of the constitutional one. Various modes of treatment, both general and local, have been tried by the author, and by other practitioners, but it is to be regretted that none have been attended with any benefit.

Dr. COPLAND eulogized the value of the paper just read, on what might be called consecutive abscess. The views advanced by Mr. Coulson on the pathology and treatment of the disease were borne out by his (Dr. Copland's) long experience, both at the General Lying-in Hospital and in private practice. Thirty years ago, attending a case of confluent smallpox, in which purulent matter was absorbed into the blood, the joints became affected, and death was the result. It was not necessary, however, that the matter absorbed into the blood should be purulent, for a sanguous secretion was not only as bad, but might be even worse. He recollects, many years ago, before the article "abscess" in his Dictionary was written, to have attended a woman suffering under a sanguous form of leucorrhœa, accompanied by slight ulceration of the uterine neck. This patient was soon afterwards attacked by purulent inflammation of one of the eyes, which was destroyed. She died afterwards from purulent disease of the joints. The os uteri was found ulcerated, and there was a sanguous fluid in the vagina. The circumstances attending the absorption of poisonous matter into the blood might vary very much, but the symptoms were usually the same. It was most important that the early symptoms should be detected. These consisted of rigors, followed by sweating, with pains in the joints. When detected early, a decided plan of treatment might be of good effect. The indications were, first, to support the powers of life; secondly, to

deurate the blood, if possible by purgative medicines, and such as acted on the skin and kidneys; and, thirdly, by local applications. To effect the first and second, he had employed the compound tincture of bark, with serpentine, chlorate and subcarbonate of potash, or quinia and camphor. To the joints he had applied the spirits of turpentine, cold, on linen, three or four times a day. These were the means most likely to succeed.—*Lancet*, Oct. 22, 1853.

49. *Osteocephaloma of Humerus—Amputation at Shoulder-joint—Secondary Hemorrhage from Axillary Artery arrested by Compression.*—Dr. GEO W. CAMPBELL, of Montreal, relates (in *The Medical Chronicle*, July 1853) a case of amputation at the shoulder-joint, which is interesting as showing that secondary hemorrhage from arteries of primary magnitude may be successfully treated by compression, at some distance from the bleeding point upon its cardiac aspect.

The subject of this case was a man twenty-eight years of age, admitted into the Montreal General Hospital for a large tumour, involving the whole circumference of the middle third of the left arm. Amputation at the shoulder-joint was deemed advisable, and was performed on the 22d of Sept. 1851.

Everything progressed favourably till the 14th day, the wound having almost completely united, excepting for about an inch near its centre, where the ligature from the axillary passed out. On the afternoon of this day an alarming hemorrhage occurred. The gush was sudden, and the stream large, and it certainly would have proved rapidly fatal, had not pressure been promptly applied by Mr. Sinclair, the acting apothecary; as it was, several pounds of blood were lost. At a consultation of the staff of the hospital, it was determined instead of performing deligation of the subclavian at the outer border of the scalenus anticus muscle, or opening up the wound and attempting to secure the bleeding axillary, to try the effects of compression with the horseshoe tourniquet of Signorini. From the tilting upwards of the clavicle, the anterior pad of the instrument was placed below that bone over the spot where the subclavian was felt pulsating upon the first rib, the posterior pad being applied to the dorsum of the scapula. From the tendency to slip upwards, it was found very difficult to keep the instrument in its position; but with the assistance of the pupils attending the hospital, compression was maintained pretty steadily for five days, and then suspended, as it became irksome to the patient, and all tendency to hemorrhage seemed to have ceased. This state of affairs continued till the 21st day, in spite of the frequent disturbance occasioned by a diarrhoea, which had troubled the patient more or less for a week previously, and which was found very unyielding to treatment. At 9 P. M. on the evening of that day, arterial hemorrhage again broke out, while the patient was in the act of describing a peculiar sensation which he then experienced, and which had also preceded the former attack, as if something fluid was trickling from the shoulder to the points of the fingers; only a few ounces of blood were lost, as the house surgeon, Dr. Reddy, immediately reapplied the compressor, with a broad leather pad under the posterior limb of the instrument, to diffuse the pressure over a large surface, and a bandage which retained it securely in its place. The compressor was worn after the occurrence of the second hemorrhage for three weeks, until the ligature had come away, and the stump had completely cicatrized. The pressure was borne with great fortitude by the patient, who left the hospital about two months after his admission perfectly restored to health, and has continued free from any return of the disease up to the present time.

The tumour was found to consist of the humerus expanded into a mere shell containing medullary matter.

OPIITHALMOLOGY.

50. *Mydriasis.*—The following ten cases of mydriasis occurring in the practice of Mr. BOWMAN are reported in the *Med. Times and Gazette*, July 23, 1853:—

CASE I. *Single mydriasis, with rheumatic history; recovery.*—Mary Jones, aged

26, a married woman, of sanguine temperament, applied for advice, on the morning of April 28, stating, in great alarm, that she had just discovered that she could scarcely see at all with her right eye. No pain or other unusual sensation had been experienced in the organ, nor had it been subjected to any injury. The pupil of the affected eye was seen on examination to be dilated to almost the utmost possible extent, the iris being contracted to little more than a thick rim, and quite motionless, while that of the opposite eye was of natural size, and moved readily. The sound eye being closed, she had full perception, but could not distinguish near objects, on account of the mist and haziness which appeared to surround them, and was quite unable to read the largest print. She could, however, see things across the street with tolerable distinctness. A piece of card, with a small round hole in the centre, being held close before the eye (an artificial iris), it was found that on looking through it she could read almost as well as ever. The woman was suckling; she stated that she usually enjoyed good health, with the exception of suffering frequently from rheumatic pains in the joints, which, during the two previous days, had been unusually severe. Guided by this history, Mr. Bowman expressed an opinion that the disease was probably connected with rheumatism (rheumatic neuritis, and consequent paralysis); and encouraged the patient by stating that he thought it would probably pass off in a short time. R. Haust. magnes. sulph. c. vin. colch. ʒj. n. et m.; empl. lyttæ pone aur. dextr.

May 1. The pupils are of equal and natural size, and the patient can see as well as ever. The diagnosis as to cause is farther confirmed by the fact that the medicine has acted freely on the bowels, and that the rheumatic pains in other parts are much relieved.

CASE II. Mydriasis of left eye; recovery.—John Templar, aged 51, a stout, healthy man, admitted February 10. While working, a month ago, his left eye was struck by a small bit of iron; there was no visible wound, and on the following day the eye was quite well, and the vision continued perfect until four days ago, when he noticed that everything looked misty, and found that he could not read the largest type. There has been no pain in the eye or head, but the light dazzles somewhat. The pupil of the affected eye is fixed and widely dilated; he can see distant objects, and near ones also, on looking through a pin-hole aperture. There was apparently nothing in the condition of his general health to account for the disease, and Mr. Bowman accordingly prescribed for it as one of simple paralysis. Empl. lyttæ reg. supra-orbit. sinistr. The raw surface to be sprinkled with the sixth of a grain of powdered strychnia on the following morning.

February 14. Two applications of the strychnia have been made without any unpleasant result. Rep. empl. lyttæ et strychn.

17th. There is much improvement both in vision and in the mobility of the pupil. He states that he has several times felt giddy, "as if he had been drinking;" no twitching of the muscles has, however, occurred. Rep. empl. lytt.; applic. pulv. strychniæ o. m.

21st. On the day after last note he had a severe rigor, and has felt giddy and ill ever since, and, in consequence, the strychnia has been applied but once. He is now feverish, with furred tongue, and violent pain in the forehead. R. Mist. salin. ʒj. ter die; omit. omnia alia.

24th. Is still giddy, very pale, and feels ill. Pulse small; tongue thickly furred; great pain in the forehead. No improvement in sight since the 17th. Mist. gent. co. ʒj. ter die.

28th. Is better, the pupils act well, but the sight continues dim. Every morning, about 1 A. M., he is regularly awoke by severe frontal headache attended with fever, which after a time gives place to perspiration, and about 8 o'clock the pain usually disappears. R. Haust. quin. ʒj. ter die.

March 9. Pain much diminished, and the febrile paroxysms have ceased to occur.

16th. The iris is freely movable, but the pupil does not contract to quite its proper size. He can see well, and is improving in health.

April 13. Excepting that the left pupil is still a little larger than the right,

the affected eye is in a perfectly natural condition. The man has quite regained his health. Discharged.

CASE III. *Mydriasis attended with mental and physical depression; recovery under tonic treatment.*—Henry Peller, aged 30, a bookbinder, admitted June 29. He is a cachetic man, and twice during the last four years has been subjected to a course of mercury for the cure of syphilis. With this exception, he considers that his health has been good; but, for several months, he has been out of spirits, and subject to melancholy. He is married, but not living with his wife; states, with regard to venereal indulgence, that he does not have connection oftener than once a week, and is occasionally subject to involuntary seminal emissions. Confesses to frequent masturbation. The day before yesterday he could see as well as ever; but during the morning he found, whilst at work, that his right eye was as if covered with a film, and, on mentioning it to his fellow-workmen, the latter informed him that the black part of the eye was much larger than on the opposite side. The pupil of the left eye is now perfectly natural, but that of the right is motionless, and twice the size of the left; pulse 80, feeble; bowels open, appetite good; is restless, and sleeps badly. In addition to advice in respect to his habits, Mr. Bowman prescribed—Extract hyoscyam. gr. v, o. n. R. Am. sesquicarb. gr. vij; infus. gent. co. ʒj; tinet. lupuli ʒss, ter die.

July 20. He is in much better health; but the condition of the eye remains nearly the same, the iris being, however, a little more mobile. Rep. mist. sine ammon.

27th. The iris acts much better. Pt.

August 7. Pupil of natural size, and iris fairly active. Vision is very much improved, but still a little misty. To continue the medicine.

September 7. Discharged quite well.

CASE IV. *Double mydriasis; recovery; relapse three years afterwards.*—M. B., aged 46, a man in somewhat weak health, overworked, and who had recently suffered from carbuncle, applied on account of mydriasis of both eyes, which had existed for about two weeks, attended with all the usual symptoms, excepting that when looking through a pin-hole aperture he could not see perfectly unless a convex lens were added. The affection was already passing off in the left eye, but not so with regard to the right. Under a tonic regimen the disease was quite well in both in about four days; but the patient remaining weak, nervous, and occasionally subject to double vision, Mr. Bowman ordered him into the country for a few weeks, where he soon regained his health. The chief feature of interest in the case was, that he stated that he had suffered a precisely similar attack three years previously, for which he was under the treatment of the late Mr. Dalrymple.

CASE V. *Mydriasis, with rheumatic history; recovery.*—M. M., aged 40, a man of hale-looking aspect, but considering himself in scarcely average health, was admitted on April 3. Three weeks previously he had found that the sight of the right eye was misty, and a few days before admission he noticed, on examination, that the pupil was much enlarged. He stated that he had been subject to rheumatic pains in various parts; had had no head symptoms; and there was no visible disease about the eyeball other than a fixed and widely-dilated pupil. He could see distant objects well, and, with the assistance of a perforated diaphragm, near ones also. Ung. antim. pot-tart. supra-orbit. reg. infriacand. R. Pil. hydr. gr. v; ext. acet. coeh. gr. j. Ft. pil. alternis noctibus sumend. Haust. cath. ʒss, p. r. n.

The patient lived at some distance in the country, and was not seen again for three weeks.

May 21. The pupil now acts with tolerable promptness, and, on exposure to light, contracts to a moderate size. Vision is much improved. This patient afterwards recovered perfectly.

CASE VI. *Double alternating mydriasis.*—We must allude to the next case very briefly; its sole peculiarity was the change of the affection from one eye to the other. Eliza Santon, aged 25, married, a nervous, very anxious woman, subject to confusion in the head; she has very misty and indistinct vision with the left eye, the pupil of which is fixed and dilated. The affection commenced

ten days ago in the right eye, and, after a few days, changed its seat, and attacked the left; the right is now quite healthy; pulse 80; bowels open; tongue furred and clammy. Under the use of stomachics and counter-irritants the patient recovered.

CASE VII. *Mydriasis without apparent cause; failure of treatment by the ergot of rye.*—Charles Church, aged 24, applied on account of uncomplicated mydriasis of the left eye, attended with all the usual symptoms, and of three weeks' standing; no cause could be detected. Mr. Bowman made trial of the ergot of rye, a remedy formerly reputed to possess a specific power in inducing the iris to contract. The powder was first used as a snuff, then the tincture was administered in half-drachm doses three times daily, and lastly the powder in ten-grain doses. None, or, if any, the least possible improvement resulted, and the medicine had ultimately to be discontinued on account of headache. Mr. Bowman informed us that, in the numerous trials he had made with the ergot, he had never been able to prove its possession of any remarkable virtues in regard to this disease.

CASE VIII. *Mydriasis after symptoms of cerebral derangement.*—William Shuttleworth, aged 32, a foreman in the docks, for six months subject to occasional tinnitus aurium, admitted June 10. A fortnight ago, while engaged in writing, he became dizzy for a short time, and never since has been able to see clearly with his right eye. There is no morbid appearance, excepting that the pupil is fixed and motionless. The left is healthy, and contracts quickly on the admission of light to the right, thus proving the retina of the latter to be unaffected; vision with the right eye is misty, not dark; distant objects are clearly seen, and near ones by using a perforated card; he has had no pain; general health good; is accustomed to live well; motion of lids perfect; bowels open; tongue thickly furred with a yellow coating. R. Pulv. purg. gr. x, o. n. Empl. lyttæ pone aur.

15th. Much the same; bowels freely open. Gutt. belladonnæ ocul. dext. bis die applicand.

22d. Complains of pain in the temples; condition of eye the same. Omit the belladonna. R. Pil. purg. gr. v, o. n.; hausti quin. 3*i*, bis die.

29th. No improvement. Rep. med. A blister is to be applied over the eye-brow, and dressed with powdered strychnia.

July 13. The blistered surface has healed. The pupil is certainly less dilated, and the vision is more distinct. Rep. empl. lyttæ.

17th. Pupil yet smaller. Pt.

20th. Condition of eye stationary. R. Strychniæ gr. $\frac{1}{5}$, ter die sumend.

This patient improved greatly subsequent to the last note, but was not well at the time when he ceased to attend.

CASE IX. *Mydriasis complicated with ptosis, etc.; recovery under the use of mercury.*—The following case is one which may seem not to come within the definition of mydriasis, since there was evidence of disease of other parts of the ocular apparatus besides the iris. That disease, however, stood in relation to it of a complication, and not a cause. The case differs, probably, from one of simple mydriasis, solely in the circumstance that the affection of the nerve-trunk, instead of being placed immediately before its ultimate distribution in the iris, was situated much nearer the brain, perhaps within the skull, and involved a larger and common trunk, thus producing paralysis of the iris, but also of something more, viz. all the structures supplied by the third nerve. That disease was probably organic, consisting of effusion, either hemorrhagic or inflammatory.

Elizabeth Martin, aged 37, single, in good health, was admitted August 9, suffering from complete ptosis of the right eye, with fixed and dilated pupil, and being also unable to rotate the eye inwards, or turn it easily either upwards or downwards. The dilatation of the pupil was attended by the usual symptoms; everything appeared misty and indistinct when the sound eye was shut, and, on attempting to walk, she turned giddy, and almost fell; yet, by the aid of a perforated diaphragm, she could see distinctly. She stated that, about a month previously, she one evening perceived suddenly a mistiness coming over both eyes, which induced her to rub them rather forcibly; the left soon recovered, but about an hour and a half afterwards she noticed that the right lid was com-

pletely dropped. She had no headache, but thought that she might possibly have taken cold, having been sitting in an open window. Had since been under medical care, and treated with blisters and purgative medicines. R. Calomel gr. ij; pulv. Doveri gr. vi, o. n.; empl. lyttæ pone aur. dextr.

16th. There is increased power of elevating the lid. Pt.

19th. Not much improvement; gums just beginning to be slightly sore. R. Calomel gr. j; pulv. Dov. gr. vj, o. n.

23d. Can raise the lid almost as well as ever, but the iris and the recti muscles remain almost powerless. Rep. empl. lytt. et pulv.

26th. Increased power over the recti; but the pupil, although somewhat smaller, is not mobile; gums less sore. Rep. pulv. cum cal. gr. ij, singul.

30th. Iris more active; sight much improved; can read small type. Rep.

September 2. Pupil little above natural size, freely movable; mouth very sore. Rep. pulv. cum calomel gr. j, tantum singulis; haust. quinæ 3j, bis die.

13th. Farther improvement; ptyalism has subsided.

October 18. The eye is quite natural in its condition in every respect. Discharged.

CASE X. *Single mydriasis, with rheumatic history,* is chiefly noteworthy as occurring without other apparent cause in a strong young man, aged 22, who had been frequently subject to rheumatism. The symptoms were well marked, and were relieved by anti-rheumatic medication.

51. *On the Removal of a particular kind of Opacity from the Cornea.*—Mr. H. HAYNES WALTON has revived the nearly obsolete method of removing opacity of the cornea with the knife, and relates the following case, in which he resorted to this plan of treatment:—

Elizabeth Wheeler, aged 29, became a patient here so long ago as 1845; attended me for some months, then resorted to some other ophthalmic institution; and ultimately replaced herself under my care in the summer of last year, 1852. Of the prior attendance I have no data; my notes apply to the re-entering. She was virtually blind, requiring to be led, and unable to perform any act demanding eyesight. The centre of each cornea, to an extent a little beyond the pupil (the left eye being the more affected), was occupied by a dense opacity, slightly raised, and which gave in profile somewhat the appearance of "conical cornea." The form of each was irregularly spherical, with sharp outline. The colour, French-white, with dots or mottlings, not unlike those which appear on the back of the cornea in the affection called "aquo-capsulitis." Altogether, the appearance was peculiar and striking, differing from that of ordinary opacity, and conveying the idea of being due to a deposit of a substance probably cretaceous. The remainder of each cornea was transparent; otherwise the eyes seemed healthy. When the pupils were dilated, she could see to move about in the house alone; but there was not sufficient sight for any employment.

Nothing of her history of any value could be gathered, and a long examination elicited merely that, from childhood, she had been subject to inflammation of the eyes, and her blindness was of about ten years' duration.

Reflecting on the insufficiency of previous treatment, and on the physical character of the disease, I concluded that I had before me a case that warranted operation. I decided to employ the miniature gouge, which, as you know, I generally use to remove foreign substances from the cornea, and to pick away, as it were, the opacity. This I considered safer than to use a knife.

I selected the right eye, picked away at the outer margin of the opacity, detaching some, and was not a little gratified to find that it was superficial, and, as I hoped, not deeper than the anterior elastic lamina. Finding my attempt successful, the opacity reduced, and transparency of the cornea thus far restored, I repeated my little process four times, at intervals of a month, and operated twice on the left eye. Now, there was vision enough with the right for her to read large type, and with the left she could move about alone. Still, in both, especially the left, some opacity remained.

She ceased to attend me from this period till the present summer, when I operated twice more on the right eye, and nearly, but not quite, established a clear cornea, a small spot of opacity passing deeper than I deemed it prudent

to penetrate. The left eyeball, too, was scraped a few times, and here, also, a central deep bit resisted removal.

To conclude the report, the appearance of the eyes is so far natural that it needs a careful examination in a favourable light to detect the remaining opacities. The form and outline of the cornea are normal, and their entire surfaces reflect the light. Vision is nearly perfect. With either eye she can thread a common sewing-needle (No. 6), but the left is rather the more perfect.

As this is the only case of the kind of which I have personal experience, I have little to add to the facts that it affords.

Perhaps the first points of practical import that demand remark, are the fitness of the case for the means used, and the signs by which such cases may be diagnosed. Concerning the first, the opacity being raised, and to all appearance of an earthy nature and superficial, induced me to interfere. I suspected that there was a circumscribed deposit of a foreign substance, which could be removed, just as one would extract a particle of iron, or any other extraneous matter, imbedded in the cornea. As to the second, I trust it is sufficient to put you on your guard to prevent you from mistaking small staphylomata of the cornea, or fungous growth from the conjunctiva, for this affection. You must be observant to prevent such errors. It is by personal observation alone that you can learn their distinctive characteristics. Of the precise nature of the substance scraped away I cannot speak, as neither minute chemical nor microscopical examination was made. I did not detect any grittiness with the instrument; but this does not disprove an earthy nature.

I must tell you that this class of treatment is not restricted to opacities that are raised. So long as we have tolerable assurance that the loss of transparency of a part of the cornea is due to deposit of earthy material, there can be no reason against operating, although such deposit does not interfere with the natural outline of the part. At the same time, the opposite state renders diagnosis more certain, insomuch as it goes to prove that there is some material superadded. Nor does the practice end here; it has been applied to opacities, the result of cicatrices from loss of substance of the cornea, or from opaque deposit, the consequence of inflammatory attack; but I should be travelling away from the case before us to enlarge on this; you may find a full account of the subject in my work on *Operative Ophthalmic Surgery*, in the chapter on the removal of opacities of the cornea by operation. I shall, therefore, confine myself to a short statement from Mr. Spencer Wells, who was present at one of the occasions of my "scraping." Mr. Wells saw Malgaigne perform his second operation of paring opacities of the cornea, at the Hospital of St. Antoine, Paris, in 1845, as follows: He made an incision above the upper edge of an opacity, which covered the lower part of the cornea, and divided the external laminæ. He then fixed the edge of the opaque portion with fine forceps, and on raising it this peeled off very easily, and the separation was completed by another incision round the lower edge. Mr. Wells saw the first patient upon whom M. Malgaigne had operated six months before, and the cornea was perfectly transparent. Mr. Wells tells me that he has himself repeated this operation in two cases, with equally favourable results.

You should realize to your mind that this application of practical surgery has reference to a portion of the eyeball, about the thickness of one's thumbnail, and to separate the component parts of which, even on the dead eye, demands exquisite manipulation.

Let us now inquire a little into the conditions essential to the success of scraping the cornea. It is necessary that that portion of it posterior to the operation do retain its transparency, and that the repair of the injury inflicted by the instrument be effected by transparent material. I imagine that little is to be apprehended from failure in the former, and the fulfilment of the latter must, I conclude, depend on the depth to which the true corneal tissue, the laminated part, is penetrated.

I strongly suspect that the perfection of repair differs in the two instances of loss of structure from ulceration, and from wounds, being by far more complete in the former. That a breach by ulceration, provided it be small, which will penetrate far into the laminæ, nay, even go through them, may, under

favourable conditions, be filled by a material in no respect inferior in transparency to the original structure, while the removal of any of the laminae by art, or the separation of them, must be attended with the greatest risk of opacity, and that in proportion to the extent of the wound. It is said that Malgaigne, who made a great stir about the operation at the time of its revival among educated surgeons, for it seems that it had lapsed into the hands of itinerant oculists, sought to convince himself of its practicability by removing laminae from the cornea of animals, and obtained success that encouraged him to operate on man. The chance of inflammation of the cornea supervening on any of these operations, and so spoiling that which had been transparent, must be taken into the general account in deciding on the mechanical treatment of opacities. The dread of this was the reason of my proceeding cautiously and in so piecemeal a manner, effecting by many stages what might perhaps have been accomplished at once, or at least by much fewer operations. I have nothing to regret from my caution. But slight action followed each of the applications of the gouge, and the effect so caused passed off in two or three days. It is probable, judging from the result of the operation, that the instrument never penetrated beyond the anterior elastic lamina. The restoration of epithelium, always rapid in slight abrasions of the cornea, was quickly effected.—*Med. Times and Gaz.* Nov. 5, 1853.

52. *Ossification of the Vitreous Body.*—In *Virchow's Archiv.* for 1853, p. 580, Dr. Von Wittich has published the dissection of the disorganized and shrunken eye of a man aged 60, in which the posterior part of the vitreous body appeared converted into true bone. The choroid was thrown into shrivelled folds, the capsule of the lens opaque, and the lens itself the subject of earthy deposition. Traces of the retina were found lying behind and surrounding the bony mass which occupied the posterior part of the vitreous humour. This substance was true bone, as evidenced by its numerous corpuscles; it was cup-shaped anteriorly towards the lens, passing into a softer semi-gelatinous substance, which was evidently altered vitreous humour, and upon the anterior surface of which the zonule of Zinn could be distinctly observed. The bony substance sent forward small prominences into this softer matter.

Our author concludes from the true ossification here observed, that the vitreous body possesses a true cell-texture, as, in tissues destitute of this, we may have calcareous matter deposited, but not true bone formed.—*Association Med. Journ.* October 7, 1853.

53. *Presbyopic Amblyopia.*—Under this name, M. Sichel describes (*Ann. d' Ocul.* February, 1853) the weakness of sight induced in long-sighted persons by forcing their eyes to look habitually at objects within their true focal distance; reading, sewing, etc., without the necessary glasses. Now, with all respect to M. Sichel, we cannot help thinking that we have here no novelty, but merely asthenopia, accompanied with more or less ocular congestion and irritation.

Let us keep clearly in view the two elements of this complex malady: *asthenopia*, consisting in an impaired power of adjusting the eye to the vision of near objects; and *amblyopia*, consisting in irritability of the retina, and differing from amaurosis in being a symptom of exhaustion and morbid excitability, and not of paralysis, although it may of course end in that.

The blindness of the amaurotic is constant; that of the amblyopic is induced by exertion of the organ, and disappears when it is allowed to rest; that of the asthenopic is, properly speaking, not blindness at all, since the smallest object can be seen at all events for a few seconds, and distant objects always well. We cannot see why asthenopia, induced in a presbyopic person by injudiciously reading or sewing at the ordinary distance, should in its nature be a different disease from the asthenopia induced in a person of ordinary vision by engraving or watch-making at four or five inches distance. Nor do we think that M. Sichel has much enlightened us in the matter of treatment.

Rest to the eye, and its employment on distant objects only; local depletion, and counter-irritation when necessary; and a judicious derivative and altera-

tive general treatment, are surely just the means which any well informed ophthalmic surgeon would use in such cases, keeping always in view that the disease is one of local exhaustion, often complicated with congestion, and almost always with more or less constitutional derangement and debility.—*Assoc. Med. Journ.* Oct. 7, 1853.

MIDWIFERY.

54. *New Method of inducing Premature Delivery.*—Dr. SCANZONI was induced, by observing the active sympathy between the breasts and the other parts of the sexual apparatus, to try to produce premature delivery by irritating the nerves of the mammary glands. The first experiment was made upon a young woman, aged 24, who, two years ago, had been delivered by perforation, in consequence of contraction of the pelvis. In the thirty-second week of uterogestation, apparatus constructed of caoutchouc, forming sucking-pumps, were put upon the nipples. During three days they were used about seven times, the process going on upon each occasion for two hours. After the third application, the neck of the uterus became shortened; after the sixth, severe labour-pains came on; after the seventh, the child was born.

The only danger likely to ensue from this very simple method of treatment is inflammation of the mammae; this can be met with proper treatment.

A second case, of similar kind, occurred to the author. A young woman, *enceinte* for the first time, suffered so severely from dyspnoea, connected with organic disease of the chest, that premature delivery was necessary for the preservation of her life. After the third application of the sucking-pumps, an apparently dead child was born; respiration, however, was soon re-established. The author remarks that this case is not quite conclusive, because premature delivery occurs often in connection with severe dyspnoea, independent of other influences.—*Med. Times and Gaz.* Oct. 1, 1853, from *Verhandl. der Med. Phys. Ges. zu Würzburg*, 1853.

55. *Sudden Death during Parturition.*—Dr. CROOKE records, in a late number (Sept. 28, 1853) of the *Dublin Medical Press*, the following interesting case:—

"M. H., aged 36, was brought in a car to the Macroom Union Infirmary on the 3d inst. She stated that she was in labour of her sixth child; that her illness commenced two days previously, while travelling to join her husband, who had obtained employment in a distant part of the country; that she had not expected her confinement for another month; that she had been received into a farmer's house, and kindly treated. Whilst answering my questions, she had a sharp pain, and, on examination, I found the os dilated to the size of a crown-piece, and very soft and yielding, a bag of membranes presenting, but no part of the *fœtus* was within reach. I should have conceived her to be not more than six hours in labour, were it not for her own statements, corroborated by the woman who accompanied her, to the effect that she had suffered occasional strong labour pains for forty-eight hours previously. She was a remarkably handsome, well-formed woman. Her circulation and respiration were good, and all the symptoms seemed to promise a safe, if not a speedy delivery. I ordered a domestic enema, and left her in charge of a careful, intelligent nurse-tender, with directions to send for me when her labour was more advanced. In exactly an hour after, I was hastily summoned, and was at her bedside in ten minutes, but found she had expired in a few seconds after the message was sent to me. The nurse informed me that she had not left her for an instant; that her pains had not altered, either in character or frequency, until within a few minutes of the fatal termination; that then, during a stronger pain, a small quantity of liquor amnii was discharged; that shortly after, a powerful expulsive effort followed, during which her face and neck became very livid; that, when the pain ceased, she complained that her heart was leaving her; that her respiration

became suffocative, and she died in a few minutes. Having satisfied myself by auscultation that the foetus was not living, I did not perform the Cæsarian section. I made a careful *post-mortem* examination in eighteen hours after. The body was well formed and moderately fat. The chest was very broad, and the mammary glands well developed. The face was pallid, and on the front of the neck there was considerable ecchymosis. The uterus was healthy; it contained a male foetus of about seven months, very much macerated; the breech presented low down in the pelvis; there was a turn of the cord round the neck. The placenta was very firmly attached to the upper and anterior part of the fundus, and the usual quantity of liquor amnii was present. All the abdominal viscera were perfectly healthy. On opening the cavity of the chest, I found a quantity of fluid blood and some coagula, and I soon traced the source of it to be a rupture in the right pulmonary artery, just where it passes through the arch of the aorta. The heart and lungs were healthy, and the ruptured vessel did not indicate any proof of disease or weakness. Here, then, was the cause of death; it was altogether a fortuitous accident which no treatment could have averted; yet had this case occurred in private practice, where a *post-mortem* examination was not obtainable, the attending surgeon would have found it very difficult to absolve himself from blame, and the occurrence may have produced an injurious influence upon his practice for years."

56. *Effects of Menstruation on the Milk of Nurses.* By MM. BECQUEREL and VERNOIS.—Upon the effect, which the occurrence of menstruation exerts in women who are suckling, there is discrepancy of opinion among authors, the majority, however, with the public at large, believing in its deteriorating influence. So great is the difficulty in obtaining true statements upon this point, that, among the great number of hired nurses in Paris, the authors have only been able to examine the condition of the milk in three women while actually menstruating. In these, the density of the fluid was found slightly diminished, as was the proportion of sugar, and the proportion of water was sensibly so. The solid parts were notably increased, especially the casein. The authors cannot believe that such changes in composition can induce any mischief beyond some temporary derangement in the digestive organs, and even this might be prevented by causing the child to suck less, and letting it drink a little sugared water, to replace the sugar and water lost during menstruation.

In the discussion that followed reading the paper, M. Roger observed that, while attached to the Office for Nurses, he had paid considerable attention to this point, and that he had arrived at the following conclusions: If the menses reappear easily, without pain or derangement of the nurse's health, while her milk is under 12 or 15 months old, and the quantity of blood lost is normal and moderate, the quantity of milk does not become diminished, or its qualities altered, and the child does not suffer from its use. If, however, the menses are too abundant or too frequent, the milk may diminish in quantity or disappear. The same effect is also produced, though more slowly, in some days or weeks, when the menses are prolonged for a week, so that the loss is considerable. The milk will much more certainly dry up if the menses reappear at an advanced period of lactation—this being then the signal of the imperfection and approaching termination of the secretion.

When the milk becomes thus diminished, it rarely exhibits the physical characters of poor milk; but by its density, whiteness, and the excess in number and size of its globules, it more approaches in character and richness cow's milk. When the menstrual epochs reappear with difficulty, and are attended with pain, indigestion, diarrhoea, &c., or are preceded or followed by leucorrhœa, the child may suffer symptoms due to indigestion induced by the altered characters of the milk, the alteration of the milk chiefly consisting in increase in the number and size of the globules. These influences are, however, only temporary, and the milk soon recovers its normal character. The ailments which the child hence suffers are only temporary, and have been greatly exaggerated.—*Brit. and For. Med.-Chirurg. Review*, October, 1853, from *L'Union Médicale*, No. 70.

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

57. *Dying Declarations.*—A case of murder was tried before the Supreme Court of the State of Massachusetts, in May, 1853, Chief Justice Shaw presiding, in which this matter was considered. The facts are thus stated in the usual summary preceding the narrative of the trial.

Angelina Taylor, at the point of death, and conscious of her condition; but in consequence of wounds inflicted upon her head, being unable to speak articulately, was asked whether it was C. (Thomas Casey) who inflicted the wounds, and if so, she was requested to squeeze the hand of the person asking the question. Upon the above question being put to her with the accompanying request, she squeezed the hand of the person making the inquiry. Held that, under all the circumstances of the case, there was proper evidence for the consideration of the jury, they being the sole judges of its credibility, and of the effect to be given to it.

After this outline, only a few necessary explanations need be added. On the 17th of September, Taylor was found dead and his wife grievously wounded, in their house. She was alive, and continued so until the 21st. An axe, bloody, and with hair upon it, was found near the entry door.

The circumstantial facts were strongly in favour of the prisoner being the murderer. He had differences with Taylor. Tracks, as of a person running, were found in a ploughed field in the rear of the house. The shoes of Casey exactly fitted the tracks. A shirt, which he afterwards confessed to be his, was found in the wood through which he passed, rolled up, with stains of blood upon it. Indeed, he made a voluntary confession of his crime, while in jail awaiting trial.

The point of chief interest in this trial was the admission of the species of evidence noticed above. Mrs. Taylor, as has been stated, lingered more than two days, after the fatal blow was given, and retained her consciousness. The wound was such as to prevent her from speaking, except that in one instance she answered "yes," somewhat inarticulately. She was evidently conscious of what was passing round her, recognized her children and friends, and understood the questions put to her, and at the same time was aware that her chance of recovery was hopeless, and that she was at the point of death.

Upon the question, as above stated, being put to her, she took her hand out of the bedclothes, grasped the hand of the person named to her, and squeezed it for about half a minute, and then let it go.

This was repeated to at least four physicians in succession, at different times.

The wound, according to the testimony of the attending physician, Dr. Hoyt, extended from the eyelid six inches across the head; there was a partial paralysis; the brain protruded through the wound, and in washing the wound a small portion of the brain was washed away.

The court, on the objection to the admissibility of this kind of evidence, observed that all words were signs; some are made by the mouth, and others by the hands. If the injured party had but the action of a single finger, and with that finger pointed to the words yes and no, in answer to questions, in such a manner as to render it probable that she understood and was at the same time conscious that she could not recover, then it was admissible evidence.—*Commonwealth v. Casey.* *Monthly Law Reporter*, August, 1853. T. R. B.

58. *On Vitreous Arsenious Acid.* By C. BRAME.—The vitreous arsenious acid of commerce sometimes contains sulphur, and it is urged that to this cause we must attribute the action of iodine on it. Iodine exerts no action on the porcolanic acid, or on the crystallized acid.

I have sought for sulphur in the arsenious acid, which is wholly vitreous, and in the porcolanic with vitreous bands, but can find no trace of it. Specimens of each were dissolved in hydrochloric acid and in aqua regia, and no precipitate was obtained by the addition of chloride of barium.

It follows that vitreous arsenious acid, and that which is in part dentrified,

contain no sulphur, and that the distinctive characters which I have obtained by means of the vapour of iodine retain their full value.—*Comptes Rendus*, July 18, 1853.

T. R. B.

59. *Poisoning by a Decoction of Chemical Matches.*—Dr. FERRARI gives us the following extraordinary case in the *Medical Gazette of Lombardy*. A seller of matches, aged 22, half an idiot, accused of theft, was so much affected by the charge that he determined to poison himself. From want of other means, he took about two thousand matches, placed them in a pot filled with water, and boiled them. He swallowed this extraordinary decoction. In about twelve hours he was seized with vomiting, and brought up bilious and greenish matters containing portions of the matches. When seen two hours later, his countenance was much altered, but his tongue was healthy, his body cold, the abdomen soft, and the pulse small and slow. The vomiting continued, and there was violent abdominal pain. The day after, the abdomen was swollen, and fatal fainting fits occurred.

On dissection, the heart and its cavities were found filled with black blood, tending to the condition of clots. The stomach contained a fluid resembling tamarind water, without an offensive odour; its mucous coat was so softened that the handle of a knife, passed behind, readily detached it in a dissolved condition. It was the same with the duodenum. The remainder of the intestinal canal was healthy.

The poisonous substance in this case was phosphorus. The matches used were of two kinds; one united with chlorate of potash, and the other with nitre and the peroxides of lead and manganese. Both are brought into a state of union by gum-Arabic. It is probable that, in boiling, the phosphorus was converted into phosphoric acid, at the expense of the chlorate or the nitre. The antidote most certain would be calcined magnesia or its carbonate, in large doses, or lime-water, or soap and water.—*Gazette des Hôpitaux*, July 16, 1853.

T. R. B.

60. *Identity.*—A very curious case under this head is related in the *Monthly Law Reporter* for August, 1853, as occurring in Massachusetts; but as no physical marks are pointed out, beyond the personal appearance, I shall endeavour to state the principal facts as concisely as possible.

In February, 1852, a person named Hiram Shepardson, the keeper of a hotel at Roxbury, was arrested, indicted, and tried for obtaining a quantity of butter under false pretences. The person selling the butter, and his clerk, swore to the identity of Shepardson. They gave a description of his person, and swore positively that the defendant was this man. Two other persons, from whom it was asserted that he had purchased butter on the same day, swore as positively to his identity.

For the defence, an *alibi* was asserted, and evidence was put in to show that on the days charged he was not where the government charged that he was. The jury could not agree (seven for acquittal), and he was discharged.

Shepardson was then charged on a second indictment. The witnesses for the prosecution spoke with somewhat less certainty, and an *alibi* was again interposed. The jury here did not agree.

These circumstances led to farther examination. By means of inquiry as to the whip and sleigh in the possession of the actual criminal, another individual was discovered and arrested, and on bringing him to justice, “the witnesses who had sworn against Shepardson, when brought to see Holbrook (the actual criminal) admitted that they were mistaken, and that Holbrook was the guilty party.”

Shepardson was honourably discharged in open court.

T. R. B.

61. *On the Employment of Iodide of Potassium as a Remedy for the Affections caused by Lead and Mercury.* By B. MELSENS. Translated from the *Annales de Chimie et Physique*, June, 1849. By WILLIAM BUDD, M. D., for the *British and Foreign Medico-Chirurgical Review*, January, 1853.

This very important paper is deserving of every consideration and of extensive diffusion.

We shall endeavour to condense it as much as possible, without impairing its contents. Dr. Melsens early proclaims the objects he has in view: the *disease* caused by the presence of poison in the system, and the *cure*, by the expulsion of the poison out of the system. The principle of the treatment, by iodide of potassium, is to render soluble any metallic compounds which have become fixed in the human body, and to facilitate their elimination by uniting them with a substance most readily cast out of the system.

The old chemical view and object in these cases undoubtedly was to form *insoluble compounds* with the poisonous substance, such compounds being thought to have no action on the living economy. But this is not the case; so far from sulphate of lead, for example, being without action on the living body, I shall show that its presence inevitably causes death within a limited period; a fact which leads to a distinction between slow and rapid poisoning.

Iodide of potassium is harmless when taken in the dose of from 30 to 92 grains (two to six grammes) daily. This Dr. Melsens ascertained from his own experience, having taken, in the course of two months, 2,315 grains (150 grammes) without injury.

The kidneys are the principal outlet of the iodide of potassium. Its presence was readily detected in the expectoration, the perspirations, in the saliva, and in the tears. The mucus of the nose contained it, but in very small quantity. But, to my great surprise, it could not be found in the fecal matter of a number of persons who were taking it in large quantity. *The urine contained it largely.* Even when united with an active purgative, but a very small quantity could be detected. It is therefore with extreme difficulty that this salt can be made to pass through the bowels into the stools.

Every mercurial compound which can possibly occur in the living economy, even metallic mercury, is soluble in iodide of potassium. It may be considered as an established fact that the system may absorb and retain mercury for a number of years—under what forms, it is difficult to say; but probably from the insoluble compounds which the salts of mercury form, either with the organic or inorganic materials of the body, or with both conjoined. The principal combinations which might thus occur may be reduced to the following:—

1. Combinations of corrosive sublimate, whether in its simple state or as modified by the animal substances of the economy; viz., *a*, with albumen; *b*, with albumen and the materials of the brain; *c*, gelatine; *d*, the nitrogenous extractive matters of the blood, of muscle, of the urine, &c.; *e*, albumen, fibrin, muscular fibre, gelatine, whether in the natural state or modified by digestion; *f*, matters of the bile. 2. Mercurial soaps. 3. Phosphates of mercury. 4. Mercury in the metallic state.

Dr. Melsens has ascertained by experiments that all these compounds are soluble in alkaline or neutral pure iodide of potassium, dissolved in one of the liquids of the body.

Iodide of potassium traverses the system very rapidly. A person having emptied his bladder, took 77 grains (5 grammes) of iodide of potassium; a few minutes afterwards, iodine was detected in the urine. This experiment has been repeated, and iodine is always detected in the urine passed on the first occasion of a call to make water. Again, as a farther proof, Dr. Melsens took 679 grains (44 grammes) in eight days; 77 grains (5 grammes) daily, in four days; and 92 grains (6 grammes) in other four days. After having ceased to take the salt, I tested my urine, every time I voided it, with starch, an acid, and chlorine, and on the second day after that on which I ceased to take the iodide, I could no longer detect its presence, although the most minute portions of iodide added to the urine was made manifest at once.

It is not possible to give directly the same accumulated proof of the solubility of lead, as of that of mercurial compounds. Still, it is certain that the iodide of lead is soluble in alkaline liquids, and that it has a marked tendency to combine with alkaline iodides. I have proved that metallic lead becomes dissolved in a solution of iodide of potassium, rendered alkaline by potash. *Lead colic comes on more especially after the process of washing in the second water (large*

à l'eau seconde). It seems generally admitted that lead occurs in the form of a salt in the human body, whereas there is every reason to believe that it exists in a masked condition, or rather in the form of plumbate of soda. Painters, on being carefully questioned, with the view of fixing accurately the date of their attacks, and the circumstances under which they occurred, very often answer that they were seized with their pains after washing old paint. Now it is well known that this process is always done with alkaline solutions.

After stating the various propositions which we have given in italics, and the proofs under each, Dr. Melsens suggests that probably no other salts are preferable to iodide of potassium for the purposes indicated. An excess of common salt in the ordinary food seems, however, also useful as a prophylactic. Among workmen, who had escaped altogether, or on whom the scourge had fallen lightly, they always stated that they were fond of salted food. Dr. Melsens had occasion to make this observation in the case of ten workers in mercury.

Dr. Melsens next adduces *cases of lead poisoning treated successfully with iodide of potassium*. A house-painter, labouring under saturnine pains in the spine, in complete paralysis of the arms, and lead colic, who has been treated unsuccessfully at the Charité, took, from the 10th December, 1843, to the 13th of March, 1844, 200 grains of iodide of potassium, and at the end of this time was perfectly cured. Several other similar cases are enumerated, of which the details are given. Frequently, when the metallic compounds fixed in the body become through this mode of treatment dissolved or transformed, phenomena of acute poisoning occurred, occasioned by their liberation.

Neither sulphuric acid nor sulphates can serve as antidotes to slow poisoning by the salts or compounds of lead, the sulphate of lead being itself a slow but sure poison, capable of killing vigorous dogs in twenty or thirty days.

This last is proved by experiments made by him. The doses required seem, however, to be large. One dog was paralyzed on the eleventh day, after 108 grains of the sulphate; he then refused food, and died epileptiform, emaciated, and in a state resembling scurvy, on the 22d. Another dog took 293 grains, and died on the 28th day, with similar symptoms. In these instances, only a certain portion of the sulphate of lead can be absorbed, the rest passes with the excrement.

Sulphate of magnesia may be properly given in cases of poisoning by a soluble salt of lead, to act on the portion yet unabsorbed.

When dogs have been for some time under the poisonous influence of sulphate of lead, and iodide of potassium is administered suddenly, in pretty large doses, death will ensue. If both be given concurrently, no harm will follow. Iodide of potassium may therefore be employed as a prophylactic.

Dr. Melsens argues, that when the effects of lead taken into the system have reached a sufficiently advanced stage, and the mischief becomes aggravated by the employment of iodide of potassium, this aggravation is to his mind a *sure token of cure*, for it proves that the *remedy is acting*. Such results were obtained when white lead was given to animals.

Iodide of lead is itself a poison. 115 grains (7.50 grammes) of this salt, administered in the dose of one gramme at a time, in the course of seventeen days, caused the death of a dog. The morbid phenomena resembled those produced by the sulphate and carbonate of lead, except in the rapidity of their appearance. This animal had convulsions and fits on the sixth day, having then taken about 77 grains (5 grammes) of the salt. Iodide of lead is, therefore, a more active poison than the sulphate, being nearly on a par in this respect with the carbonate. But is this poison, administered as in the preceding case, less active when associated with the iodide of potassium?

The following is an experiment which answers this question. To be conclusive, however, it should be varied and repeated with the drugs in other preparations:—

A bitch of the same size and strength as the preceding took in thirty-three days, and generally in doses of 15 grains (one gramme) at a time, 216 grains (14 grammes) of iodide of lead. With every dose of iodide of lead, there were given 30 grains of iodide of potassium. In thirty-three days she had taken 370

grains (24 grammes) of the latter salt. The animal wasted much less than the former one; the paralysis, though easily recognized, was much less marked; to judge from her melancholy appearance, she was, however, very seriously affected. She died in a very few minutes after having taken 92 grains (six grammes) of iodide of potassium, which had been rendered slightly acid.

Cure of Gilders and of Workers in Quicksilver.—Dr. Melsens proceeds to relate some remarkable cases, which, however, we can only briefly notice. He mentions several instances of gilders, in which the use of the limbs had been lost and violent and constant pains were present. Most of them were cured by large doses of iodide of potassium (given every day), at the end of two or three weeks. The trembling was frequently such as to allow the patient to write only in the most scrawling manner, and the *fac similes* of their improvement in this respect are certainly remarkable.

In one case Dr. Melsens examined the urine of a patient on eight different occasions, in order to see if, under the influence of the treatment by iodide of potassium, the mercury would be found again in his urine. The first specimen contained mercury in perfectly recognizable quantity; the second also contained mercury, but sensibly less. In following the process employed for the first two specimens, he found no mercury in the third. The fourth specimen, examined by another process, gave scarcely an appreciable trace; but on distilling in a tube drawn out to a point, one of the slips of gold which terminated the pile he had used, Dr. Melsens obtained a small yellow sublimate, which, on the morrow, had become red. In dispersing this by the flame of a spirit-lamp, it became again sublimed with a yellow colour, passing afterwards into red. This is one of the characteristic properties of iodide of mercury.

It is not remarkable (says Dr. Melsens) to see a man under the influence of slow poisoning by metallic mercury, void, under the influence of iodide of potassium, iodide of mercury in his urine. This case was perfectly cured, "and this cure proves in the clearest manner, that when mercury is absorbed only in small daily portions, as is the case with those who work at the cold silvering process, iodide of potassium not only possesses the property of curing the patient, but acts also as a powerful prophylactic."

The following additional propositions are stated by the author:—

Iodide of potassium protects against or retards the phenomena of poisoning when the system is subjected to the action of metallic mercury.

Iodide of potassium renders medical treatment, or poisoning by certain salts of mercury, more active, and may occasion serious accidents.

Dumas, as long back as 1838 or 1839, enjoined, in his lectures, the importance of abstaining from common salt when calomel is given, and it is desired that it should remain in the state of calomel in the digestive tube. He has recommended, on the contrary, the addition of sal-ammoniac to corrosive sublimate in order to render it more stable and less easy to be decomposed when in contact with the fluids of the system. The researches of Mialhe need only to be referred to. If the same doses of calomel are given to two dogs, and to one, iodide of potassium is given at the same time, the dog which takes the iodide will be destroyed first if the doses of the two salts are at all large.

The same result happened when corrosive sublimate and iodide of potassium were given. There is a parallel to this in the *treatment of the secondary and tertiary disorders of syphilis*. The administration of the iodide of potassium often causes intense suffering in patients who have been treated by mercurials. To what is this owing? According to the opinions advanced by Dr. Melsens, two distinct effects are produced by this single agent—first, the compounds of mercury fixed in the body are rendered soluble and active; and, secondly, a form is given to them, which allows their rapid elimination. But, by the very fact, the patient is subjected anew to a mercurial treatment by the compounds of mercury already present in the body.

In these cases it is sufficient to begin with administering the iodide in a small dose. Fifteen grains a day are sufficient, increasing the dose if the patient bear it well.

In the *British and Foreign Medico-Chirurgical Review*, for April, 1853, there is a supplementary paper to that of Melsens, by E. A. PARKER, M. D., Professor

of Clinical Medicine in University College. The nature of it will be understood by his preliminary remarks. "Dr. Melsens (he says) has shown that the compounds formed by the union of mercury and its salts, with certain of its tissues, can be destroyed and the metal be dissolved by the iodide of potassium, and be eliminated through the kidneys. The mercury was actually found present in the urine. The elimination of lead in the same way is rendered highly probable by the solubility of the saturnine salts and compounds in iodide of potassium, and by the undoubted prophylactic and curative powers of iodide of potassium in cases of impending or actual lead poisoning. He did not, however, chemically prove that lead could be made to pass off by the urine in the way as is undoubtedly the case with mercury, and he left, therefore, a gap in the chain of evidence for future observers to fill up. A case of saturnine paralysis has lately occurred to the writer in which iodide of potassium appeared to cause the elimination of lead in the urine—a fact which seems to complete the argument of M. Melsens."

A painter, aged 38, was admitted into University College Hospital, in February, 1853, who had suffered for more than two years with paralysis of the extensors, and in a less degree of the flexors of both forearms, and there was a well-marked blue line along the edge of the gums. He had been incapable of work for eighteen months, and had, therefore, not been exposed for a long time to any fresh source of poisoning. He had been treated for two months, very carefully but ineffectually, in the Middlesex Hospital, and among other means by "sulphur baths."

Professor Williamson undertook the examination of the urine for lead, in the Berkbech laboratory of University College. He was furnished with four specimens. 1. The urine of February 2d to 3d, no medicine having been given. 2. The urine of February 3d to 4th, no medicine having been given. 3. The urine of February 4th to 7th, seventy grains of iodide of potassium having been taken. 4. The urine of February 7th to 10th, ninety additional grains of iodide of potassium having been taken.

Lead was not detected in the first two specimens of urine, but it was found in the urine passed after the employment of the iodide of potassium.

The processes employed may be quoted: Equal portions of the urine, Nos. 1 and 2, were evaporated to dryness; the black mass which remained was calcined, and the fused mass was boiled with excess of chlorine water. This treatment was adopted in order to get evidence of lead from the insoluble sulphate. The solution with chlorine was tested carefully for lead, but none could be detected.

The portions Nos. 3 and 4 were treated as follows: About a pint of the urine was evaporated and the organic matter destroyed by aqua regia, and the remaining salt fused and boiled for some time in carbonate of soda. After having collected the precipitate and undissolved portion, it was well washed and then treated with dilute nitric acid. The filtered solution was tested for lead with sulphuretted hydrogen, and it yielded a black precipitate of sulphide of lead. From the sulphide of lead, from one of the urines, a distinct, though a very minute, globule of lead was obtained.

The quantities of lead present in the urines Nos. 3 and 4, seemed to be about equal, but too small for quantitative estimation.

The iodide of potassium was given in ten grain doses, and on an empty stomach, to prevent decomposition by acids—a change which appears to destroy half its power.

In order to complete our references to what has been written on this subject, I may mention a paper by J. W. Corson, M. D., one of the Physicians to the Bellevue Hospital, in the *New York Journal of Medicine*, for September, 1853, entitled "Cases Testing the Iodide of Potassium as an Antidote to the Injurious Effects of Mercury, and Corroborative of the Experiments of M. Melsens."

T. R. B.

62. Insurance upon Lives. Breasted and others v. The Farmers' Loan and Trust Company.—This case, with the decision upon it by the Supreme Court of the State of New York, is given in my tenth edition, vol. i. p. 694.

It was carried up to the Court of Appeals, who have this year (1853) finally settled the matter. The following summary will explain the subject in dispute:—

It was an action brought by the plaintiffs, administrators of Hiram Comfort, deceased, to recover the amount of a policy of insurance upon his life, made by defendants.

The policy contained a provision, "that in case the said Hiram Comfort shall (without previous consent, &c.) enter into any military or naval service, in case he shall die by his own hands, or in consequence of a duel, or by the hands of justice, or in the known violation of any law of these States, or of the United States," &c., this policy shall be void. The defendants insisted that he died by his own hand, within the meaning of the policy.

The referees before whom the cause was tried reported "that the said assured threw himself into the Hudson River, from the steamboat Erie, while insane, for the purpose of drowning himself, not being mentally capable at the time of distinguishing between right and wrong."

The Supreme Court, on this report, gave judgment for the plaintiffs, and the judgment was affirmed by the Court of Appeals.

T. R. B.

63. *On the Testing of the Metallic Spots deposited by Burning Hydrogen on Porcelain.* By H. WACKENRODER.—Our author has tried the method lately proposed by Slater, and makes the following observations on determining arsenic by separation from arseniuretted hydrogen:—

If the hydrogen gas produced by the action of diluted pure or ordinary purified sulphuric acid upon common zinc be kindled, and the strong current of gas directed against white earthenware, a black spot of lead will be produced by the reduction of the lead-glazing of the earthenware.

If a very strong current of hydrogen gas be developed, and no deposit of metal takes place from its flame upon porcelain, we may be perfectly sure of the purity of the gas.

But if muriatic acid be employed instead of sulphuric acid for the production, or if any chloride exists in the fluid used, metallic spots may be formed during the rapid evolutions of the gas, which, however, are only spots of zinc. They are distinguished in this manner, that, on pouring over them diluted muriatic acid, they rapidly disappear, and that they are also readily removed by means of hypochlorite of soda.

To avoid error, it is also necessary that no nitric acid or sulphuret be present in the apparatus used in the development of the gas, which may be best formed of a two-necked bottle, with a funnel-tube, and a tube bent at right angles and drawn to a point, for the passage of the gas. The nitrous acid formed in the one case readily decomposes antimoniuretted and arseniuretted hydrogen gas, whilst a sulphuret readily causes the formation of some sulphuretted hydrogen gas, by which the spots of arsenic and antimony receive more or less of a reddish or yellowish colour.

Granulated zinc, with dilute sulphuric acid, evolves hydrogen gas better than pieces of crystalline zinc. The evolution of gas, however, easily becomes so violent that it must be moderated by the addition of water. When it has gradually become weak, it may be remarkably enlivened, frequently even to a most violent degree, by the addition of a small quantity of a solution of arsenious or arsenic acid. This circumstance must therefore not be neglected in the employment of *Marsh's apparatus* in judicial investigations.

I. *Arsenical spots.* When sufficient hydrogen gas has been generated to expel the atmospheric air from the bottle, the fluid or substance (such, for instance, as a piece of green paper), which is to be examined for arsenic, is to be introduced into it. If there be a funnel-tube to the flask, the addition of small quantities of the liquid to be examined to the sulphuric acid employed to generate the gas, is readily effected by stopping the gas tube with the finger, so that as much acid rises into the funnel as it can hold. The arsenical spots produced on the porcelain are rapidly dissolved by pouring over them hypochlorite of soda, and the porcelain becomes perfectly clean; on the other hand, the spots do not disappear on having dilute muriatic acid poured over them. If the spots of arsenic be shining, and consequently proportionately thick, the hypochlorite is somewhat longer in effecting their solution, which, however, it always does in a period of not more than a few seconds.

2. *Antimonial spots.* If a little tartar emetic (or any other compound of antimony) be added to the mixture of zinc and sulphuric acid, antimoniucretted hydrogen is immediately given off with the hydrogen. Whilst the spots on the porcelain are still faint and of a dull appearance, they are acted upon, after some time, by hypochlorite of soda, in such a manner that they become gradually indistinct, rather by being washed off by the alcoholic fluid, than in consequence of becoming dissolved in it. But if the antimonial spots be black and shining, and consequently more firmly fixed on the porcelain, they completely withstand the action of both hypochlorite of soda and diluted muriatic acid, but are quickly dissolved by a mixture of two liquids.

3. *Arsenical spots containing antimony, and antimonial spots containing arsenic.* If any arsenical fluid containing antimony be introduced into the gas apparatus, the spots on the porcelain at first contain principally only arsenic, apparently in consequence of the antimony being less volatile; but if shining spots be produced on the porcelain, which contain more antimony, these resist the action of hypochlorite of soda in a greater or less degree, and are often only eaten away around the edges.

Small quantities of antimony in the arsenical spots render these more strong and more shining, but do not prevent their solution in hypochlorite of soda. The hypochlorite of soda may therefore be used with the greatest certainty in distinguishing purely arsenical from purely antimonial spots, which indeed is the principal point in judicial investigations, but not in detecting a trace of antimony in arsenical spots; it also serves in some measure to detect traces of arsenic in antimonial spots. It might be possible, but probably useless in practice, to ascertain, by comparative investigations, the quantitative proportions of arsenic and antimony at which distinct differences occur in the behaviour of mixed metallic spots with hypochlorite of soda.—*Chemical Gazette*, August 2, 1852.

T. R. B.

64. *Manchineel Tree.*—“There is no authenticated statement on record that ever a human being died from sleeping under the manchineel tree.”—*Literary Gazette* (London), 1853, p. 475.

T. R. B.

65. *Observations upon a General Method for detecting the Organic Alkaloids in Cases of Poisoning.* By Prof. STAS, of Brussels.—Whatever certain authors may have said on the subject, it is possible to discover in a suspected liquid all the alkaloids, in whatever state they may be. I am quite convinced that every chemist who has kept up his knowledge as to analysis, will not only succeed in detecting their presence, but even in determining the nature of that of bodies, the properties of which have been suitably studied. Thus he will be able to discover conia, nicotine, aniline, picoline, petanine, morphine, codeine, narcotine, strychnine, brucine, veratrine, colchicine, delphine, emetine, solanine, aconitine, atropine, and hyoscyamine. I do not pretend to say that the chemical study of all these alkaloids has been sufficiently well made to enable the experimenter who detects one of them to know it immediately, and affirm that it is such an alkaloid, and not such another. Nevertheless, in those even which he cannot positively determine or specify, he may be able to say that it belongs to such a family of vegetables—the Solanaceæ, for example. In a case of poisoning by such agents, even this will be of much importance. The method which I now propose for detecting the alkaloids in suspected matters, is nearly the same as that employed for extracting those bodies from the vegetables which contain them. The only difference consists in the manner of setting them free, and of presenting them to the action of solvents. We know that the alkaloids form acid salts, which are equally soluble in water and alcohol; we know also that a solution of these acid salts can be decomposed so that the base set at liberty remains either momentarily or permanently in solution in the liquid. *I have observed that all the solid and fixed alkaloids above enumerated, when maintained in a free state and in solution in a liquid, can be taken up by ether when this solvent is in sufficient quantity.* Thus, to extract an alkaloid from a suspected substance, the only problem to resolve consists in separating, by the aid of simple means, the foreign matters, and then to find a base which, in rendering

the alkaloid free, retains it in solution, in order that the ether may extract it from the liquid. Successive treatment by water and alcohol of different degrees of concentration, suffices for separating the foreign matters, and obtaining in a small bulk a solution in which the alkaloid can be found. The bicarbonates of potash or soda, or these alkalies in a caustic state, are convenient bases for setting the alkaloids at liberty, at the same time keeping them wholly in solution, especially if the alkaloids have been combined with an excess of tartaric or of oxalic acid.

To separate foreign substances, animal or otherwise, from the suspected matters, recourse is commonly had to the tribasic acetate of lead, and precipitating the lead afterwards by a current of sulphuretted hydrogen. As I have several times witnessed, this procedure has many and very serious inconveniences. In the first place, the tribasic acetate of lead, even when used in large excess, comes far short of precipitating all the foreign matters; secondly, the sulphuretted hydrogen, which is used to precipitate the lead, remains in combination with certain organic matters which undergo great changes by the action of the air and of even a moderate heat; so that animal liquids which have been precipitated by the tribasic acetate of lead, and from which the lead has been separated afterwards by hydrosulphuric acid, colour rapidly on exposure to the air, and exhale at the same time a putrid odour, which adheres firmly to the matters which we extract afterwards from these liquids. The use of a salt of lead presents another inconvenience, viz., the introduction of foreign metals into the suspected matters, so that that portion of the suspected substance is rendered unfit for testing for mineral substances. The successive and combined use of water and alcohol at different states of concentration, permits us to search for mineral substances, whatever be their nature, so that in this way nothing is compromised, which is of immense advantage when the analyst does not know what poison he is to look for.

It is hardly necessary to say, that in medico-legal researches for the alkaloids, we ought never to use animal charcoal for decolorizing the liquids, because we may lose all the alkaloid in the suspected matters. It is generally known that animal charcoal absorbs these substances at the same time that it fixes the colouring and odoriferous matters.¹

The above observations do not proceed from speculative ideas only, but are the result of a pretty long series of experiments which I have several times employed for discovering these organic alkaloids. To put in practice the principles which I have thus explained, the following is the method in which I propose to set about such an analysis: I suppose that we wish to look for an alkaloid in the contents of the stomach or intestines; we commence by adding to these matters twice their weight of pure and very strong alcohol;² we add afterwards, according to the quantity and nature of the suspected matter, from ten to thirty grains of tartaric or oxalic acid—in preference tartaric; we introduce the mixture into a flask, and heat it to 160° or 170° Fahrenheit. After it has completely cooled it is to be filtered, the insoluble residue washed with strong alcohol, and the filtered liquid evaporated in vacuo. If the operator has not an air-pump, the liquid is to be exposed to a strong current of air at a temperature of not more than 90° Fahrenheit. If, after the volatilization of the alcohol, the residue contains fatty or other insoluble matters, the liquid is to be filtered a second time, and then the filtrate and washings of the filter evaporated

¹ [This is no doubt true; we must not use animal charcoal to decolorize, and then look for the alkaloid in the *liquid*, but we may use it, at least in the ease of strychnia and some of the non-volatile alkaloids, to separate them, and then we look for them in the *charcoal*. See notice of Graham and Hofmann's Process for Detecting Strychnia, *Monthly Journal*, August, 1852, p. 140; *Pharmaceutical Journal*, vol. xi. p. 504, May, 1852.]

² When we wish to look for an alkaloid in the tissue of an organ, as the liver, heart, or lungs, we must first divide the organ into very small fragments, moisten the mass with pure strong alcohol, then express strongly, and by farther treatment with alcohol exhaust the tissue of everything soluble. The liquid so obtained, is to be treated in the same way as a mixture of suspected matter and alcohol.

in the air-pump till nearly dry. If we have no air-pump, it is to be placed under a bell-jar over a vessel containing concentrated sulphuric acid. We are then to treat the residue with cold anhydrous alcohol, taking care to exhaust the substance thoroughly; we evaporate the alcohol in the open air at the ordinary temperature, or, still better, in *vacuo*; we now dissolve the acid residue in the smallest possible quantity of water, and introduce the solution into a small test-tube, and add little by little pure powdered bicarbonate of soda or potash, till a fresh quantity produces no farther effervescence of carbonic acid. We then agitate the whole with four or five times its bulk of pure ether, and leave it to settle. When the ether swimming on the top is perfectly clear, then decant some of it into a capsule, and leave it in a *very dry place* to spontaneous evaporation.

Now, two orders of things may present themselves; either the alkaloid contained in the suspected matter is liquid and volatile, or solid and fixed. I shall now consider these two hypotheses.

Examination for a Liquid and Volatile Alkali.—We suppose there exists a liquid and volatile alkaloid. In such a case, by the evaporation of the ether, there remains in the inside of the capsule some small liquid striae which fall to the bottom of the vessel. In this case, under the influence of the heat of the hand, the contents of the capsule exhale an odour, more or less disagreeable, which becomes, according to the nature of the alkaloid, more or less pungent, suffocating, irritant; it presents, in short, a smell like that of a volatile alkali masked by an animal odour. If we discover any traces of the presence of a volatile alkaloid, we add then to the contents of the vessel, from which we have decanted a small quantity of ether, one or two fluidrachms of a strong solution of caustic potash or soda, and agitate the mixture. After a sufficient time, we draw off the ether into a test-tube; we exhaust the mixture by two or three treatments with ether, and unite all the ethereal fluids. We pour afterwards into this ether, holding the alkaloid in solution, one or two drachms of water, acidulated with a fifth part of its weight of pure sulphuric acid, agitate it for some time, leave it to settle, pour off the ether swimming on the top, and wash the acid liquid at the bottom with a new quantity of ether. As the sulphates of ammonia, of nicotine, aniline, quinoleine, picoline, and petinine, are entirely insoluble in ether, the water acidulated with sulphuric acid contains the alkaloid in a small bulk, and in the state of a pure sulphate; but as the sulphate of conia is soluble in ether, the ether may contain a small quantity of this alkali, but the greater part remains in the acidulated watery solution. The ether, on the other hand, retains all the animal matters which it has taken from the alkaline solutions. If it, on spontaneous evaporation, leaves a small quantity of a feebly-coloured yellowish residue, of a repulsive animal odour, mixed with a certain quantity of sulphate of conine, this alkaloid exists in the suspected matter under analysis. To extract the alkaloid from the solution of the acid sulphate, we add to the latter an aqueous and concentrated solution of potash or caustic soda, and agitate and exhaust the mixture with pure ether; the ether dissolves ammonia, and the alkaloid is now free. We expose the ethereal solution at the lowest possible temperature to spontaneous evaporation; almost all the ammonia volatilizes with the ether, whilst the alkaloid remains as residue. To eliminate the last traces of ammonia, we place for a few minutes the vessel containing the alkaloid in a *vacuum* over sulphuric acid, and obtain the organic alkaloid with the chemical and physical characters which belong to it, and which it is now the chemist's duty to determine positively.

I applied, on the 3d of March, 1851, the process which I have described, to the detection of nicotine in the blood from the heart of a dog poisoned by two cubic centimetres [0.78 C.I.] of nicotine introduced into the oesophagus, and I was able in a most positive manner to determine the presence of nicotine in the blood. I was able to determine its physical characters; its odour, taste, and alkalinity. I succeeded in obtaining the chloro-platinate of the base perfectly crystallized in quadrilateral rhomboidal prisms of a rather dark yellow colour, and to ascertain their insolubility in alcohol and ether.

I have applied the same process for the detection of conia in a very old tincture of hemlock, which my friend and colleague M. de Hemptinne was so kind

as to put at my disposal ; and I was equally successful in extracting from the liquid colourless conia, presenting all the physical and chemical properties of this alkali. I was also able to prove that the ether which holds conia in solution, carries off a notable portion of this alkaloid when the solvent is exposed to spontaneous evaporation.

Examination for a Solid and Fixed Alkaloid.—Let us now suppose that the alkali is solid and fixed ; in that case, according to the nature of the alkali, it may happen that the evaporation of the ether resulting from the treatment of the acid matter, to which we have added bicarbonate of soda, may leave or not a residue, containing an alkaloid. If it does, we add a solution of caustic potash or soda to the liquid, and agitate it briskly with ether. This dissolves the vegetable alkaloid, now free and remaining in the solution of potash or soda. In either case, we exhaust the matter with ether. Whatever be the agent which has set the alkaloid free, whether it be the bicarbonate of soda or potash, or caustic soda or potash, it remains, by the evaporation of the ether, on the side of the capsule as a solid body, but more commonly a colourless milky liquid, holding solid matters in suspension. The odour of the substance is animal, disagreeable, but not pungent. It turns litmus paper permanently blue.

When we thus discover a solid alkaloid, the first thing to do is to try and obtain it in a crystalline state, so as to be able to determine its form. Put some drops of alcohol in the capsule which contains the alkaloid, and leave the solution to spontaneous evaporation. It is, however, very rare that the alkaloid obtained by the above process is pure enough to crystallize. Almost always it is soiled by foreign matters. To isolate these substances, some drops of water, feebly acidulated with sulphuric acid, are poured into the capsule, and then moved over its surface, so as to bring it in contact with the matter in the capsule. Generally we observe that the acid water does not moisten the sides of the vessel. The matter which is contained in it separates into two parts, one formed of greasy matter, which remains adherent to the sides—the other alkaline, which dissolves and forms an acid sulphate. We cautiously decant the acid liquid, which ought to be limpid and colourless, if the process has been well executed ; the capsule is well washed with some drops of acidulated water, added to the first liquid, and the whole is evaporated to three-fourths in vacuo, or under a bell-jar over sulphuric acid. We put into the residue a very concentrated solution of pure carbonate of potash, and treat the whole liquid with absolute alcohol. This dissolves the alkaloid, while it leaves untouched the sulphate of potash and excess of carbonate of potash. The evaporation of the alcoholic solution gives us the alkaloid in crystals.

It is now the chemist's business to determine its properties, to be able to prove its individuality. I have applied the principles which I have just expounded to the detection of morphine, iodine, strychnine, brucine, veratrine, emetine, colchicine, aconitine, atropine, hyoscyamine—and I have succeeded in isolating, without the least difficulty, these different alkalies, previously mixed with foreign matters.

I have thus been able to extract, by this process, morphine from opium, strychnine and brucine from *nux vomica*, veratrine from extract of *veratrum*, emetine from extract of *ipecacuanha*, colchicine from tincture of *colchicum*, aconitine from an aqueous extract of aconite, hyoscyamine from a very old extract of henbane, and atropine from an equally old tincture of *belladonna*. Thus it is in all confidence that I submit this process to the consideration of chemists who undertake medico-legal researches.—*American Journal of Pharmacy*, January, 1853, from *Bulletin de l'Académie Royale de Médecine de Belgique*, tom. vi. No. 2; *Edinburgh Monthly Journal of Medical Science, and Pharm. Journ.*

T. R. B.

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

On the Polytrichum Juniperinum as a Diuretic. By WILLIAM WOOD, M. D., of East Windsor-Hill, Connecticut.—Having been in the habit of using a plant in my practice which is, I believe, wholly unknown to the medical profession as possessing any medicinal properties, and believing it to be far superior to any diuretic known, I am induced to give a brief botanical description of it, with a few marked cases in which it was useful. The plant grows very abundantly in New England, and I know not but that it may be found elsewhere. My method of using it has been, to gather a generous handful of the *whole* plant while on the way to see my patients, and order it to be steeped and drank freely, the more so the better. I have never seen an unpleasant symptom arise from it, although I have used twice the above-named quantity in twenty-four hours.

Series. Cryptogamia. Nat. Order. Musci. Genus. Polytrichum. Calypta apparently formed of hair or fibres of flax. Capsule 4-sided, nodding in old fruit. Peristome single, 64 teeth. Flowers dicecious; sterile flowers cup-shaped, terminal.

First species, *Juniperinum* (Hedwig), stems generally simple; pedicle supporting the capsule, smooth, wiry, two-third inches in height from the top of the plant; leaves entire; capsule oblong, about the size of a grain of wheat, surmounted by a beaked lid which falls from the old fruit, exposing the smooth dilated apex of the columella.

Second species, *Commune* (Linn.), differs from the foregoing by being taller, and having serrate leaves; found often with the former, generally growing in damp places; possesses probably the same medicinal properties. Common name, Hair-cap Moss, and Robbin's Rye.

CASE I. Miss O., in the winter of 1847 and 1848, had a severe attack of typhoid pneumonia, and, while convalescing, her kidneys ceased to perform their proper function. This was followed by anasarca, the oedema commencing in the lower extremities and increasing very rapidly. The legs became enormously enlarged, to more than twice their natural size, presenting the appearance of polished marble, and so sensitive as not to be able to bear the least touch. After a few days, this was followed by ascites, respiration became very difficult, so much so that I was summoned to the patient's bed three times in twenty-four hours with the message that she was dying; pulse 140–150 a minute. I had been using diuretics, alteratives, frictions, counter-irritants, and tonics, as the symptoms had indicated, but all to little or no purpose. At this stage of the disease, Dr. Watson was called in consultation, and pronounced it a hopeless case, saying that she could not live twenty-four hours. For the nine days previous, she had been elevated to nearly the sitting posture, as it was impossible for her to breathe lying down, and, during this time, her position had not been changed, as the least motion produced dyspnoea to an alarming degree. I now administered polytrichum freely (for the first time in my practice), without any fear of doing injury, as I believed that no medication could save, or even prolong life many hours. In

twelve hours called again; found her passing urine freely (or, as the nurse said, by the pailful), which afforded her great relief. Twenty-four hours from the time the polytrichum was first administered, the skin on her limbs could be laid in folds. The ease after this improved gradually under the use of tonics, stimulants, &c., without any return of the dropsical effusion.

CASE II. Miss A., 1848, had been troubled with ascites for more than twelve years; had consulted the physicians in Hartford and its vicinity, and had been under the care of at least as many M. D.'s as she had years been troubled, not only without any permanent amelioration of symptoms, but with a gradual increase of disease. The ascites had been ascribed to hepatic derangement, for which mercurials had been freely administered; salivation had been the result. She had become so susceptible to the influence of mercurials, that one-eighth of a grain of calomel would salivate her. When I saw her, the dropsical effusion extended over her lower limbs, abdomen, and chest; pulse 120 a minute; respiration difficult; urine little in quantity and high-coloured, with a brick-coloured sediment. I gave her freely of the above-named article. In forty-eight hours her dropsy had almost wholly disappeared; she has had but one slight return of the disease since, and that was induced by a severe attack of dysentery.

CASE III. Mrs. N., from New York city, 1850, had for years been troubled with scantiness of urine and consequent oedema; had generally gained some relief from medicine; but, as she remarked, "had derived no benefit of late, because she had worn her medicines out." I gave her polytrichum; saw her next day, and learned of her that she had had occasion to urinate sixteen times during the night. On her return to New York, she took a supply of the article with her; saw her in New York three months after, and at that time there had been no return of symptoms to require the medicine again.

CASE IV. Mr. H., of Hartford, 1853, had been unwell for six months; had been troubled with hepatic difficulties, bleeding from the lungs, oedema, very little urine, and sometimes scarcely none at all for several days. His father, hearing that I had been successful in the treatment of some obstinate cases of dropsy, applied to me for medicine for that purpose. He informed me that the best medical skill Hartford afforded could not give the least relief to his son for his dropsy; that he could not get on his trowsers or stockings. I gave him some polytrichum; did not see him for three weeks, when the young man himself rode up to see me, eight miles, with not only his trowsers and stockings on, but also his boots. Mr. H. said: "In half an hour after taking the above medicine, he began to pass water freely, and his dropsical symptoms immediately subsided." I gathered him a supply of the article when here, but have recently learned that he has had no occasion to use it, as there has been no return of the dropsy since, although three months have elapsed, and his other symptoms continue unabated.

I could give a long list of cases equally as striking, if necessary.

EAST WINDSOR HILL, October 12, 1853.

Fatal Hemorrhage from the Bowels in a New-born Infant. By G. R. HENRY, M. D., of Burlington, Iowa.—On the night of Sunday, 16th of October, I was called to attend Mrs. Y., of this city, in her eighth or ninth confinement; labour was easy and natural, no difficulty of any kind, except from an attached placenta, requiring the introduction of the hand for its removal. The child was small but vigorous, but had a wrinkled and rather *old* appearance, which excited my apprehension that all was not right with it; it, how-

ever, seemed to be doing well, but as its bowels had been very slightly moved, on Tuesday morning a dose of olive-oil was administered; this brought away the ordinary fecal discharges, and the child remained comfortable until about eleven o'clock P. M., when there was a gush of blood from the bowels, soon followed by a second. I saw it between one and two o'clock Wednesday morning, and just as I entered the room it had a third discharge, which was so profuse that it saturated the clothes of the child and ran through upon the lap of the nurse; there was at least a quarter of a pint of clear blood, unmixed with any fecal or other matter. The child's pulse was very feeble, and I thought it would die soon. I ordered a saturnine injection, expecting to find the child dead in the morning. The discharges were slightly diminished, but still continued, and I found the child at eight o'clock in the morning, in apparently the same condition as when I left it. I then ordered an emulsion of turpentine to be given and continued through the day, which brought away two fecal discharges, and the bleeding ceased; but it commenced again in about four hours with fresh vigour, and continued until about seven o'clock Thursday morning, when the child died. The amount of blood lost was variously estimated; I think there was at least a quart poured out, this being below the estimate of any one present.

At two o'clock Thursday, I made an autopsy in presence of some half dozen physicians of this place. The examination was confined to the abdomen. The stomach, liver, and spleen were healthy, and in their normal position; the circulation through these organs was unimpeded; the duodenum was also healthy and filled with bile; the lower part of the jejunum was filled with blood; the mucous membrane had a very much injected and eechymosed appearance; the ileum was like it, throughout its whole extent, except two or three contracted portions, from one to three inches in extent, which were empty, and there the mucous membrane was healthy; the caecum, colon, and rectum were filled with blood, and the mucous membrane presented the same injected appearance, which could not be washed away, or rubbed off. The *appendix vermiciformis* was large, and was filled with a coagulum of blood.

There was no rupture of any vessel, and no malformation of any part; the mucous membrane of almost the entire bowel was the seat of the hemorrhage, which seemed to have proceeded from it by the process of exhalation. I was surprised that the child lasted so long, under so great and continued a drain of the vital fluid; I should again be at a loss as to what treatment to adopt with any hope of success in a similar case.

There was no bleeding from any other part of the body; the child nursed well until an hour or two before its death. I have no means of accounting for the occurrence of the hemorrhage, unless it was a tendency to dysentery (which was very rife here), so strong as to break up the bloodvessels in the fragile tissue of so young a child.

BURLINGTON, IOWA, October 31, 1853.

Unusual Quantity of Liquor Amnii, or Dropsy of the Amnion, with Foetal Ascites. By C. R. PARKE, M. D., of Bloomington, Illinois.—On the evening of the 3d of this month I was called to see Mrs. P., said to be in labour (she was under the care of a homœopathist). The following is the history of the case as I learned it from herself: Her menstrual discharges had ceased the third week in April last; she enjoyed her usual good health until about the first of October, when she felt more or less pain in her left side in the region of the liver, which continued to increase in severity in proportion to the enlargement of the uterus. About one week previous to labour,

anasarca of the lower extremities was visible. She was much larger than she ever had been, even at the full period of gestation. Three days before delivery, she was troubled with dyspnoea when in the recumbent position. All the common external applications had been made to relieve pain, in conjunction, I suppose, with a few small pills, but to no purpose.

She had a few slight pains before I arrived, and the usual quantity of liquor amnii had been discharged. I made an examination, and found the child in the third position; however, a very strong pain making its appearance, the head was delivered without much difficulty. The pain continued with powerful tonic contractions, but it seemed to no purpose. I brought down the arms, and still complete delivery did not take place. I was at a loss to know the cause of this retention, and concluded to make gentle traction. I did so, and in a few minutes the child was born, when near a common pailful of water was discharged at one gush, running over the side of the bed and down upon the floor. In about fifteen minutes the placenta was discharged, since when she has been doing well, not even having an after-pain.

The cause of the difficulty of the expulsion of the child was *ascites*, there being near one gallon of *bloody serum* within the abdominal cavity. The child made several efforts to breathe, in which I attempted to assist it by all the ordinary means, but the diaphragm being so pressed against the lungs by the fluid in the abdominal cavity, it was impossible to fill the lungs with air. We then concluded to tap the abdomen and draw off the fluid—this we did, but to no purpose; the child died.

A *post-mortem* examination was made of the child; we could not detect any disease or malformation, every organ being in a healthy condition; the liver was unusually large, but apparently healthy.

Labour complicated by Monstrosity. By G. W. PATRICK, M. D., of Terre Haute, Indiana.—I was called to see Mrs. C., aged seventeen, on Friday evening at six o'clock, who had some symptoms of approaching labour. Her pains were irregular and inefficient. I gave her an anodyne, and concluded to remain all night, having had some anxiety in her behalf from the enormous distension of the abdomen. The pains were quieted by the anodyne, and I left her on Saturday morning quite comfortable; but I was called again at six o'clock of that evening. Labour was then advancing; the mouth of the womb was open the size of a half dollar, and the head could be felt in a favourable position.

At nine o'clock labour-pains were severe, but the head advanced very slowly. I now discovered a disposition in the case to be converted into a face-presentation. I used every effort to push up the brow and allow the occiput to descend; but the back of the head was entirely immovable. Things went on in this way until near morning; the face gradually descending, but no advance of the vertex. At about four o'clock in the morning there was no farther advance of the head; the forehead was presenting at the outlet of the pelvis. The patient now was becoming incoherent in her expressions and not seeming to suffer from her pains, which were very strong. I was about making preparations to bleed, when she was seized with a convulsion. I immediately dispatched a messenger for consultation, and as soon as the convulsion subsided endeavoured to extract blood, but could only succeed in getting about an ounce. Dr. Read soon arrived; previous to which the patient had had three convulsions, and in the intervals was entirely unconscious, her pains, however, continuing quite strong. Several other efforts were made to draw blood, but without effect.

The head was so firmly wedged in the pelvis that it was impracticable to apply forceps; we therefore concluded to open the head, which we succeeded in doing at the anterior fontanelle. On emptying the cranium the head was brought a little farther down, but it was now discovered that something was attached to the back of the head which prevented farther descent. We succeeded in applying a blunt-hook to the nape of the neck, and by seizing a firm portion of the skull with a long pair of tooth-forceps, we made strong traction at each return of pain. We now found that the whole mass was coming away, which was effected at about six o'clock in the morning. For half an hour after delivery was effected, the patient lay perfectly quiet, and we were beginning to have some hopes that the convulsion would not return; but in this we were disappointed, as they soon commenced and continued as often as once in every fifteen minutes until five o'clock in the evening, when she expired, never having been conscious from the first paroxysm.

The foetus was well formed. There was a tumour attached to the occipital bone by a pedicle about an inch in diameter; this was separated from the child and retained for farther examination, when it proved to be an attempt at a second head; it was of a soft pulpy feel; when the child was held in an upright position, the tumour reached to the hips. Upon cutting into it, it was found to contain well formed cerebral substance, with detached lamella of bone. In the centre was about a pint of dark grumous blood. The tumour weighed three and a half pounds, the foetus ten pounds, and a placenta that weighed four pounds, making a combined weight of nearly eighteen pounds; and when to this was added a large quantity of liquor amnii, it constituted an ovum of enormous size, especially as the mother was quite small and of very slender make.

Every effort was made to control the convulsions, with the exception of chloroform; this was forbidden by the husband. I had procured the article, and was about commencing its administration, and was much pleased with its effects, when I was compelled to desist, as above said.

On Retention of Urine in Children; and on Painful Distension of Vagina after Birth of the Child. By ROBERT S. BAILEY, M. D., of Charleston, South Carolina.

DEAR SIR: Having noticed in the last number of the *American Journal of the Medical Sciences*, two cases of retention of urine in children by Dr. John Toler, and also a few remarks on painful distension of the vagina, after the birth of the child, by Dr. Leopold, I send you some brief notes from my case-book by way of farther illustration, should you think them worthy of an insertion in your valuable journal.

The cases communicated by Dr. John Toler are interesting as arising from a cause that may be overlooked, more particularly in very young children. Dr. Toler's patients were twelve and thirteen years of age. In the following cases, the patients were much younger:—

CASE I. August 24, 1847, was sent for to visit a child aged three months. The nurse informed me that, on passing urine, something like a fish's bladder protruded, which caused some obstruction. On examination, I found the cause was not congenital, but appeared to arise from excoriation of the labiae, which had caused them to cohere. A probe was introduced and carried in a direction downwards as far as the frenum. I was, however, shortly after summoned again to see the little patient, as no relief had been obtained. I now found that the orifice of the urethra was covered by the same thin membrane. I directed the probe upwards, which effectually relieved the patient;

the parts were directed to be kept open for a few days by the introduction of a piece of lint or linen rag smeared with sweet-oil.

CASE II. August 26, 1847, was called upon to see a child aged one year; the cause was precisely the same as the preceding one, but only observed for the first time this morning. No cause could be assigned for its production; no inconvenience appeared to be produced. A probe was introduced from above downwards the whole length of the vagina, with relief.

CASE III. May 10, 1850, visited a child aged two years; has had for some time difficulty in micturition, and, on examination, found a closure of the labia, with the exception of one very small orifice for the discharge of the urine. A probe was introduced through the orifice, and the parts divided downwards; little or no hemorrhage; the patient experienced immediate relief.

It may be proper to remark that the first case I ever witnessed of this kind was many years ago, when a student at the London Hospital. The patient, a child, was exhibited before the class, and a probe introduced by Mr. Thomas Blizzard; he observed that the cohesion was commonly so slight that the scalpel was not necessary; should, however, any portion of the membrane be so thick as to form a band across the vagina and cause pain or difficulty in the operation, I should prefer the scissors.

Dr. Leopold mentions painful distension of the vagina as arising from accumulated coagula, or a very large placenta. It would, however, appear from the following case, which occurred in my practice, that it may be produced from malformation of the funis:—

March 2, 1823, was sent for in the evening a distance of nine miles to visit Mrs. F.; I was informed that she had been delivered by a midwife since five o'clock P. M., but that the placenta could not be brought away; after waiting some time, and making ineffectual efforts to draw it away by the funis, I took hold of the funis with one hand and introduced the other into the vagina to the placenta, and by gently drawing down with both hands (yet with a considerable degree of force), I succeeded in extracting it. On examination, the placenta appeared larger than ordinary, and the funis divided into two branches about three inches previous to entering the placenta, and about the same distance between each insertion, resembling in shape the letter Y.

It is evident that if traction is made in the axis of the pelvis, or directly downwards, as commonly directed, it would not succeed in such a case.

Fracture and Dislocation of the Humerus of a Fœtus in Utero. By ARISTIDE RODRIGUE, M. D., of Hollidaysburg, Penn. (Communicated in a letter to the editor.)—I must give you a case of fracture and dislocation of left arm of a child in utero. The woman, when about four months gone with child, fell on her left side, striking a board, and felt herself much hurt at the time; at the full period she was delivered of a full grown large boy, with the following deformity: Dislocation of the humerus in the axilla, fracture of both bones of forearm of left side, lower third. Dislocation could not be reduced; union of the bones of forearm by ossific matter complete; bones passing each other, and hand at an angle of about forty degrees; the child did well otherwise; the boy is now four years old, strong and hearty; humerus has grown nearly equal with the other; forearm has not, and remains short and deformed as at birth; the hand is of the same size with that of the sound side.

Extract of Nux Vomica in Typhoid and Congestive Fevers, Diarrhœa, and Cholera Infantum. By ARISTIDE RODRIGUE, M. D., of Hollidaysburg, Penn. (Extracted from a letter to the editor.)—Permit me to communicate to you the very successful administration of nux vomica in large doses in low stages of typhoid and congestive fevers. Where the cerebral symptoms are alarming, such as drowsiness, stupor, and coma, I give from $\frac{1}{4}$ to $\frac{1}{2}$ grain every half or one hour, until some evidences of the medicine could be observed, or the patient improve. Where patients are sinking, and you find stimulants and tonics unavailing, unless there are organic lesions to prevent recovery, I have the fullest confidence this remedy will prevent a patient from sinking prematurely. In combination with spts. ether. nit. it relieves the subsultus, which is so common and vexatious. For a long time I have been using this medicine in diarrhœa, and those cases when large and frequent watery discharges from the bowels exhaust the patient rapidly. In cholera infantum it is of singular efficacy with me. Not being aware of the use of nux vomica in these fevers, I have taken the liberty to write to you, in hopes it may be of service to others.

Cholera infantum is a common disease in the country; in our towns, mountain tops, and valleys, it attacks a great number of children, and the mortality is sometimes very great. I am anxious to make and collect some observations respecting it, among which are the following:—

Have you ever known cholera infantum to attack a child twice?

Do you not make a *marked* distinction between ordinary diarrhœa, common cholera morbus, and cholera infantum of children?

Have you observed an eruption of pimples, or anything else, as an usual attendant upon cholera infantum?

Do not children, once cured of the disease, again exposed to all the supposed exciting causes, particularly in the cities, seem to remain well, even in the summer months?

DOMESTIC SUMMARY.

What Amount of Skill a Physician must have.—The following opinions, delivered by Judges Woodward, Black, and Lewis, in reference to the subject of skill in a physician or surgeon, in attending a patient, to free him from the charge of malpractice, should he fail to effect a cure, will be read with interest. They are of more than ordinary importance, and, it will be seen, overturn the law of the court below.

Dr. Alexander G. McCandless *vs.* James McWha—Error to Common Pleas of Beaver County.—Woodward, J.—This was an action on the case by the defendant in error against the plaintiff in error, a respectable physician and surgeon, for malpractice in setting a broken leg of the plaintiff, and the only question of any importance, presented for our consideration, is whether the court erred in charging “that the defendant was bound to bring to his aid the skill necessary for a surgeon to set the leg so as to make it straight, and of equal length of the other when healed; and, if he did not, he was accountable for damages, just as a stonemason or bricklayer would be, in building a wall of poor materials and the wall fell down; or, if they built a chimney, and it should smoke by reason of a want of skill in its construction.”

It is impossible to sustain this proposition. It is not true in the abstract, and if it were, it was inapplicable to the circumstances of the case under investigation. The implied contract of a physician or surgeon is not to cure—to

restore a fractured limb to its natural perfectness—but to treat the case with diligence and skill. The fracture may be so complicated that no skill vouchsafed to man can restore original straightness and length, or the patient may, by wilful disregard of the surgeon's directions, impair the effect of the best conceived measures. He deals not with insensate matter, like the stonemason or bricklayer, who can choose their materials and adjust them according to mathematical lines, but he has a suffering human being to treat, a nervous system to tranquillize, and a *will* to regulate and control. The evidence before us marks this strong distinction between surgery and masonry, and shows how the Judge's inapt illustration was calculated to lead away the jury from the true point of the cause.

Dr. Duncan describes the fracture as an oblique comminuted one, of the *tibia* and *fibula* of the leg, about half way between the ankle and the knee, and he says that, on one occasion, when he was present at a dressing of the limb, he heard Dr. McCandless complain that McWha had loosened the bandages, and he told him that if he loosed them, his leg might be shortened, but McWha justified his act because his leg was painful. Now upon such a state of facts, the question was, not whether the Doctor had brought to the case skill enough to make the leg as straight and long as the other, but whether he had employed such reasonable skill and diligence as are ordinarily exercised in his profession. For less than this he is responsible in damages, but if he be held to the measure laid down by the court below, the implied contract amounts, on his part, to a *warranty of cure*, for which there is no authority in law. In a fracture like this, a shortening of the limb is sometimes an inevitable consequence. Dr. Dorsey, in his *Elements of Surgery*, speaking of broken legs below the knee, says: "The fracture of both bones is most frequent—it may be transverse or oblique, simple or compound, comminuted or single. The fragments are occasionally displaced in every direction. In transverse fractures there is generally no shortening of the limb, but in those which are oblique, the leg is generally shortened." And from *Fergusson's System of Practical Surgery*, cited in the argument, we learn that the fissure in the tibia may be oblique, and the fragments, two or more, may have a constant tendency to become displaced—there may be great irritability of the muscles, particularly during the early part of the treatment—great restlessness of the patient, or unwillingness to submit to the requisite confinement; in short, a vast variety of circumstances likely to cause difficulty in the treatment. Not to multiply authorities, these are sufficient to show that the rule prescribed by the court is too rigid for this class of cases—that shortening of the leg may result from the most careful and approved practice, or from the misconduct of the patient. Nothing can be more clear than that it is the duty of the patient to co-operate with his professional adviser, and to conform to the necessary prescriptions, but if he will not, or under the pressure of pain cannot, his neglect is his own wrong or misfortune, for which he has no right to hold his surgeon responsible. No man may take advantage of his own wrong, or charge his misfortunes to the account of another.

We do not mean to intimate an opinion that this case was properly treated, or that the leg could not have been restored to the length of its fellow, but in view of the diversified circumstances that attend cases of this sort, it was very important that the true rule of professional responsibility should have been given to the jury, with instructions that they should inquire from all the facts in proof whether the defendant had come up to it, or stopped short of it.

We have stated the rule to be reasonable skill and diligence, by which we mean such as thoroughly educated surgeons ordinarily employ. If more than this is expected, it must be expressly stipulated for, but this much every patient has a right to demand in virtue of the implied contract which results from intrusting his case to a person holding himself out to the world as qualified to practise this important profession. If a patient applies to a man of *different occupation* or employment for his assistance, who either does not exert his skill, or administers improper remedies to the best of his ability, such person is not liable in damages; but if he applies to a *surgeon*, and he treats him improperly,

he is liable to an action, even though he undertook gratis to attend the patient, because his situation implies skill in surgery. Per Heath, J. in *Shields v. Blackburn*, 1 *Hen. Blac.* 161; *Scare v. Prentice*, 8 *East*, 348.

The principle is contained in the pithy saying of Fitzherbert, that it is the duty of every artificer to exercise his art rightly and truly, as he ought. This is peculiarly the duty of professional practitioners, to whom the highest interests of man are often necessarily intrusted. The law has no allowance for quackery. It demands *qualification* in the profession practised—not extraordinary skill, such as belongs only to a few men of rare genius and endowments, but that degree which ordinarily characterizes the profession. And in judging of this degree of skill, in a given case, regard is to be had to the advanced state of the profession at the time. Discoveries in the natural sciences for the last half century have exerted a sensible influence on all of the learned professions, but especially on that of medicine, whose circle of truths has been relatively much enlarged. And, beside, there has been a positive progress in that profession, resulting from the studies, the experiments, and the diversified practice of its professors. The patient is entitled to the benefit of these increased lights. The physician or surgeon who assumes to exercise the healing art, is bound to be up to the improvements of the day. The standard of ordinary skill is on the advance, and he who would not be found wanting, must apply himself with all diligence to the most accredited sources of knowledge.

If, in view of the principles here stated, Dr. McCandless should be found, on retrial, to have performed his whole duty to his patient, and that any defects in the limb are due to the patient's fault, or to the peculiarities of the fracture, there ought to be no recovery in damages. But if the blemish be fairly attributable to professional negligence, the jury should assess the damages.

The only remaining error assigned is scarcely worthy of notice. The action depended so entirely on its own circumstances, that the observation of the court as to the policy of such suits was irrelevant, and we may fairly presume harmless. But for misdirection on the other point, the judgment is reversed, and a *venire de novo* awarded.

McCandless vs. McWha—Black.—We all concur in the law of this case. The Judge, in his charge, fell into an error in stating the amount of skill required in the treatment of this case. We reverse for that reason. But when we decide the legal point we are done with it. We are not authority on questions of surgery. Our hands are abundantly full of questions which belong to our own profession, without volunteering opinions on sciences which relate to others. I think it necessary to say this, in order to prevent the court below, on second trial, from supposing that we intend to give them any instructions on matters in which we have no jurisdiction.

McCandless vs. McWha—Lewis, J.—Without dissenting from the able opinion of Mr. Justice Woodward, I make the following additional remarks. The case is peculiar, and relates to matters of such general interest as to justify this course. The court below charged the jury, that "the defendant was bound to bring to his aid the skill necessary for a surgeon to set the leg so as to make it straight, and of equal length with the other when healed; and, if he did not, he was accountable in damages, just as a stonemason or bricklayer would be in building a wall of poor materials, and the wall fell down; or, if they built a chimney, and it would smoke by reason of a want of skill in its construction." This is the error complained of, and it seems to be thought that the court, in giving this instruction, held the surgeon bound, under all circumstances, to cure the fractured leg so as to "make it straight and of equal length with the other when healed." I do not so understand the language of the Judge. He only held the surgeon bound to "*bring to his aid*" the skill necessary for the purpose. If the fracture in question was one which might have been restored by the exercise of ordinary skill, there was no error in requiring its exercise from one who held himself out as possessing it, and received compensation for his services in consequence of his represented professional ability. This brings us to the question: Was the injury one which might have been cured by the exercise of ordinary surgical skill? To decide this question we must have a

description of the fracture. The evidence given has not been brought up by the bill of exceptions, and the defendant in error objects to that part of it which has been inserted in the paper-book, without being certified as correct. The only testimony presented for consideration here by the plaintiff in error is the deposition of Dr. Duncan, who was his student at the time of the injury, and visited the patient in company with his preceptor after the first visit of the latter. This witness describes the injury to be "an oblique comminuted fracture of the *tibia and fibula*, nearly half way from the ankle to the knee, or thereabouts;" and informs us, in speaking of the treatment of it by Dr. McCandless, that "there were splints on the fore and back parts of the leg, reaching from the ankle to the knee, to keep up extension and counter-extension." Doctor McCandless, on this visit, complained that the patient had "disturbed the bandages and dressing by *loosing them*;" and the patient "defended the act of *loosing the bandages*, because the leg was painful." The witness farther states that the leg, at this time, was "considerably swollen."

We have no precise account of the manner in which the splints were secured, so as to "keep up the extension and counter-extension," for which the witness tells us they were designed. I am unable to comprehend how splints "reaching only from the knee to the ankle," could be applied to such a purpose without manifest danger of injury by means of the attachments which would be necessary to produce the result. *Extension*, as used among surgeons, is the force exerted on the lower fragment, in order to bring its superior extremity lower than the inferior extremity of the superior fractured portion; and *counter-extension* is a resisting force which prevents the whole limb, or even the body, from obeying the force of extension. The attachment, by means of a circular bandage at the ankle, for the purpose of extension, and that at the knee, for the purpose of counter-extension, would tend to impede the circulation, particularly the venous return (which ought not to be obstructed), and would irritate the parts so as to produce great pain and probable injury. Professor Boyer, in his lectures on diseases of the bones, recommends that the splints should be long enough to extend from the knee to a *short distance beyond the sole of the foot*, and that they should rest perpendicularly on their edges, and a third splint on the anterior portion of the leg. Professor Miller, in his *Principles of Surgery*, states that the splints should "*invariably* be of sufficient length to command the neighbouring joints, otherwise, by rotation, redisplacement will certainly take place." Dr. Hutchinson recommends splints extending from the knee *six or eight inches below the sole of the foot*, so as to dispense with irritating attachments at the ankle. But Professor Dorsey, whose skill and experience entitle his opinion to great respect, in his work on surgery, informs us that even Hutchinson's convenient method is found to produce great irritation, and to cause the leg to swell from the pressure of the circular bandages; and that, when this happens, in oblique fractures of the leg (such as the case in question), the *long splint of Desault must be substituted*, and the *counter-extension made at the pelvis*, in the same manner as in the case of a fractured thigh, except that the leg must be dressed with the bandage of strips." In fractures of the thigh, permanent extension is usually effected by means of a long splint, acted on by a band attached to its upper extremity, and passed over the perineum, by the tightening of which the splint and the limb are pushed steadily downwards. By the addition of a shorter splint, but long enough, nevertheless, to extend from the perineum to six or eight inches beyond the sole of the foot, united at the lower extremity to the long splint by means of a crosspiece, the extending force could be applied to the ankle by attachments to the crosspiece, in such manner as to avoid irritation or other injury. But according to the opinion of eminent surgeons, "a short splint, extending a little above and below the fracture only, is not only an absurdity, but a mischievous absurdity."—*Miller's Prin. Surgery*, 506. Entertaining these views of the case, I am bound to say that the plaintiff in error has failed to satisfy me, either upon philosophical principles, or by surgical authority, that the means made use of for the purpose of producing "extension and counter-extension," were adequate or even proper for the purpose. If this was a case in which such extension by artificial means was not required, the mere

want of adaptation of the means to that end would be immaterial. But we must remember that the fracture was oblique, not transverse—that it was comminuted—that is, the bones were broken not only at one point but many—and, that both the *tibia* and *fibula* were thus fractured. Under these circumstances, in preventing the shortening of the limb by the contraction of the muscles, no reliance could be placed upon the bones thus broken into fragments. The necessity of supplying the place of these natural splints, by artificial means, must, therefore, have been manifest to a surgeon of ordinary skill in his profession. But in addition to the application of means not sufficient to produce the result which was indispensable to a proper restoration of the leg, there is reason to believe, judging solely from the imperfect view of the evidence presented by the plaintiff in error himself, that the short splints were applied by attachments above and below the fracture, so as to impede the circulation—to irritate the parts, to cause the limb to be “considerably swollen” and to produce so much pain that the patient, notwithstanding the strong motive which he had to submit to any treatment likely to effect a perfect recovery, “loosed the bandages, because the leg was painful.” If this was the case, whatever may be thought of the propriety of the original application of these means of extension, their continuance, and the neglect to adopt others less liable to objection, was *prima facie* evidence of a want of surgical skill, and, if not explained to the satisfaction of the jury, the defendant below ought to answer in damages for the injury.

A patient is bound to submit to such treatment as his surgeon prescribes, provided the treatment be such as a surgeon of ordinary skill would adopt or sanction. But, if it be painful, injurious, and unskilful, he is not bound to peril his health, and perhaps his life, by submission to it. It follows that, before the surgeon can shift the responsibility from himself to the patient, on the ground that the latter did not submit to the course recommended, it must be shown that the prescriptions were proper, and adapted to the end in view. It is incumbent on the surgeon to satisfy the jury on this point, and, in doing so, he has the right to call to his aid the science and experience of his professional brethren. It will not do to cover his own want of skill by raising a mist out of the refractory disposition of the patient.

The intemperate habits of the patient are also relied upon here. But this furnishes no excuse for the want of skill in the surgeon. On the contrary, it was a circumstance calculated to admonish him that the case called for more skill and care than cases of less difficulty demand. We are, therefore, brought back to the main questions in the cause.

1. Did the surgeon exercise ordinary skill and care in his treatment of the patient? If he did, he is not liable. If he did not, he is.

2. Was the injury one which, under all the circumstances, might have been perfectly cured by ordinary surgical skill and care? If it was, and the surgeon failed in his duty in this respect, the damages ought, at least, to be commensurate with the injury. If the injured leg was not susceptible of a more perfect restoration, the surgeon would nevertheless be liable for any unnecessary pain or delay occasioned by the application of unskilful and improper remedies.

Although the error assigned may not be fully sustained, we have nevertheless a right, in our discretion, to reverse for an error not assigned, if it is believed to involve an important principle, or to affect the justice of the case. In the charge, the court told the jury in substance, that the surgeon was bound to bring to his aid the skill necessary to effect a perfect restoration of the leg. The propriety of this instruction depended upon the question whether the injury was one which, under all circumstances, a surgeon of ordinary skill might have perfectly cured. This was a question of *fact* which should have been submitted to the jury. Plain as the question may seem, it is not a matter of *law*, the decision of which can be taken from them and assumed by the court. There was, therefore, error in giving the peremptory and unqualified direction which withdrew this part of the case from the jury. But there are errors of omission as well as those of commission. When the judge spoke of the obligations of the surgeon to bring to his aid the necessary skill, he ought to have enforced the correlative duties of the patient to submit to all the skilful and proper require-

ments of his professional attendant. When the jury were told, in effect, that the defendant was liable if he failed to exercise the skill necessary to a perfect restoration of the leg, they ought also to have been informed that if he exercised ordinary skill and care, he is not responsible for the disastrous result which ensued. Where a case turns upon a question of fact, the jury should be advised of the conclusions of law which apply to each aspect of it. The object of investigations is to enable the jury to form an enlightened judgment on the whole case. The errors of commission and omission referred to, tended to give the jury a one-sided view of the controversy, and, when considered in connection with the facts that a *professional man* was on trial before a jury of *laymen*, and that the court, instead of guarding him, as in duty bound, against the prejudices likely to arise in such cases, actually indulged in a strain of remark calculated to inflame them, it is our duty to correct all the errors within our reach. The remarks complained of in the second assignment of error, affirm no principle of law, and are, therefore, not the subject of review here, farther than as they suggest the propriety of exercising a prudent discretion in regard to matters which are subject to review.

It is important to the interests of society that the profession intrusted with the preservation of the health and lives of the community should be held to a strict rule of accountability. Men of true science will not object to this. They court investigation. But the incompetent practitioner, and the designing empiric, "love darkness rather than light," and the sooner they are driven, by judicial scrutiny, into other pursuits for which they are better qualified, and where they can do less mischief, the better for the public welfare. But it is equally important that professional services should be fairly treated, and that true skill and worth should receive the firm protection of the law. All men have a right to the instructions which make in their favour; but the exigency of the surgeon's case rendered them indispensable on the present occasion. The difficulties which seem to stand in his way are sufficient without aggravating them by withholding the proper instructions in his favour.

For these reasons I am in favour of reversing the judgment, and awarding a *venire de novo*.

Aneurism of the Posterior Tibial Artery, treated by Compression.—Dr. CHARLES BELL GIBSON reports (*Virginia Medical and Surgical Journal*, Aug. 1853) a case of aneurism of the posterior tibial artery near its origin, successfully treated by compression. The subject of it was a sea-captain, forty-three years of age, admitted into the Richmond Medical College Infirmary, Feb. 17, 1851. The tumour was first observed seven months previously, and when he was admitted, was larger than a hen's egg. "A firm bandage was applied from the toes to lower part of thigh, with a firm compress over the tumour. A tourniquet was applied over the popliteal artery, so firmly as to diminish, but not entirely arrest the pulsation in the tumour, and the limb placed on an inclined plane of about thirty degrees. This pressure was continued during the day as long as the patient could bear it, generally three or four hours at a time, and then the tourniquet was shifted to the distal side of the tumour, until the painful effect of the pressure above had passed away, when it was replaced. Occasionally it was applied directly over the tumour. During the night, the instrument was always applied above the popliteal artery, but with less firmness.

"The diet of Capt. Miller was ordered to be crackers and tea, or rice, and on this he continued for more than two months.

"The treatment was continued very carefully until 29th April, when it was found that pulsation had ceased in the tumour, and that its size had been gradually reduced to that of a small nutmeg.

"The tourniquets were now removed, but the bandage was continued and compression kept up directly over the remains of the tumour by means of a layer of sheet-lead. The patient was directed to preserve the recumbent posture with the limb elevated as before. His diet was somewhat improved, being now allowed a little soup every day, and potatoes.

"On the 1st May, he got up without permission and walked across the ward,

and continued to do so every day afterwards, at hours when the medical attendants were not there.

"On the 8th May, he expressed his wish to leave the infirmary, as he felt well enough to resume his profession. He was urged to remain, but as he would not, his condition was examined for the last time, and was considered conclusive of perfect cure. He was advised to continue to wear his bandage and lead compress, and promised to do so.

"He left the infirmary on the 9th, greatly reduced in strength and size by his rigid diet, and with some stiffness in the left knee, the result of its long confinement in one position."

Trismus Nascentium successfully treated by Cannabis Indica.—In *The Charleston Medical Journal* for Nov. last, two cases of trismus nascentium are reported, one by Dr. P. C. GAILLARD, and the other by Dr. H. W. DE SAUSSURE, which recovered under the use of cannabis indica. "Time and farther experience," Dr. Gaillard judiciously remarks, "must determine whether we possess in cannabis an agent capable of controlling the disease; or whether the cases which follow must be reckoned amongst those fortunate accidents, or coincidences, which too often mislead us in estimating the value of therapeutic agents."

CASE I. Related by Dr. Gaillard. Rachael, a negress, æt. thirty-eight, of good constitution, was delivered of her eleventh child on Saturday, 23d July, 1853. The cord fell on the sixth day, and the child, a fine, robust boy, did well until Tuesday, August 2, when, towards evening, it was observed to be fretful and to nurse with difficulty. During the night it lost the power of taking the breast, and paroxysms of spasm became evident. I saw it the next day, August 3. The child was lying on the mother's lap. Paroxysms of spasm could be readily brought on by blowing into the face, or by attempting to introduce the finger or a spoon into the mouth. During the paroxysms, the muscles of the face were contracted so as to produce the characteristic expression; the lips prominent; the jaws fixed and slightly separated; the tongue pressed against and filling the narrow space between them; the nose compressed; the forehead wrinkled longitudinally; and the child uttered the grunting, whining cry, so peculiar in this disease. The muscles of the back and arms were rigid, and the fingers were forcibly shut upon the palms of the hands.

The navel had healed; there were no signs of irritation about it. The examination of the head showed that the occipital bone was in its normal position; the parietals did not override, or in the slightest degree overlap its anterior border. The child was still able to swallow a little; for although, whenever the milk with which the mother fed it was poured into the mouth, the greater part was forced out by the spasmodic action induced by its introduction, yet after a time a little was swallowed.

The following directions were given: The child to be constantly fed, while awake, with milk drawn from the mother's breast and poured into the mouth; large warm poultices to be kept constantly to the abdomen; a warm bath to be given twice a day, and a teaspoonful of the following mixture to be administered every two hours: tinct. cannabis indica ʒij, camphor water ʒij.

On the 4th, no change. On the 5th, the spasms were reported as having increased in frequency and severity; the medicine was directed to be given every hour and a half. On the 6th and 7th, no appreciable change; the treatment was assiduously prosecuted. On the 8th, the dose of the medicine was increased; ʒij of the tincture of cannabis to ʒij of camphor water, a teaspoonful every hour. On the 9th, the mother said that the child had nursed a little twice when she forced the nipple into its mouth. The spasms of some of the muscles were, however, still very violent, as I could with difficulty, and only by using considerable force, extend the fingers, which were forcibly contracted on the palm. On the 10th, the child took nourishment more freely by the spoon. On the 11th, the spasms were rather less frequent, and not so severe; the rigidity was less, and the child nursed twice. The improvement continued progressively. On the 21st, the spasms were very short, and the child took the breast readily when placed to its lips. On the 24th, the mother reported that there had been

no paroxysm of spasm for twenty-four hours, and that the child nursed freely. From the 16th, the intervals between the doses of the medicines were gradually increased, and it was continued, three doses a day, for some days after the disease had disappeared. The child has continued well up to this time, October 1st.

CASE II. Reported by Dr. De Saussure. Priscilla, a stout, healthy negress, æt. twenty-six, was delivered of her third child on the 13th March, 1853. The infant was a large, healthy looking male. The cord was detached on the fifth day; on the seventh day the child was noticed as unusually fretful, and passed several greenish watery stools; on the night of the eighth day it was fretful, restless, scarcely slept at all, and was unable to move, although apparently anxious to do so. I saw it on the morning of the ninth day, the 22d of March. It was lying in the nurse's arms, with the features contracted, the brows corrugated, the muscles of the neck and back rigid and hard, the arms and legs flexed, so as to be extended with difficulty; the hands contracted, with the thumbs drawn tightly upon the palms; the jaws not very tightly closed—the little finger could be introduced into the mouth by a little effort; deglutition was possible, but the child could not nurse. The navel was not entirely healed, but the ulceration left by the dropping of the cord looked healthy. The child was ordered to be placed in a warm bath, a large poultice applied to the abdomen, and a teaspoonful of the following mixture given every two hours, viz.: R. Tinct. cannabis indica, 3ss; syr. wild cherry, 3iss; and the mother's milk to be given by teaspoonfuls frequently. On the 23d, there was aggravation of all the symptoms; the jaws were so firmly closed that a teaspoon was with difficulty introduced into the mouth; deglutition was extremely difficult; the arms, hands, and legs were more firmly flexed; opisthotonus was present to a great degree; the slightest motion, a breath of air upon the face, even touching the lips with the finger, was sufficient to bring on general spasms, accompanied by the peculiar whimpering cry so characteristic of this disease. The head was carefully examined; no depression of the occipital bone could be detected. The same treatment was continued, and a teaspoonful of the mixture was given every hour. From the 24th to the 28th, the intensity of the disease gradually increased, until it seemed impossible that the child could survive each spasmodyc paroxysm. It was with great difficulty, and only by patient perseverance, that either milk or medicine could be swallowed. All general treatment was now abandoned. A dose of the cannabis mixture was ordered to be given every half hour, and as much milk given as the infant could be made to swallow. On the 28th, 29th, 30th, and 31st March, half an ounce of tinct. cannabis was administered every twenty-four hours. On the 1st of April, symptoms of amendment began to be visible; the spasms were less frequent, and less easily excited; the rigidity of the arms, hands, and legs, was less; and deglutition was effected with less difficulty. This improvement gradually but steadily progressed; the quantity of cannabis was proportionately decreased, and by the 10th of April, the child was entirely convalescent. It is now a fine, healthy infant.

Traumatic Tetanus successfully treated by Ice.—Dr. B. D. CARPENTER relates (*New York Medical Times*, Nov. 1853) two cases of traumatic tetanus successfully treated by the application of ice to the head and the whole length of the spine. The following are the particulars of one of these cases:—

E. G., aged sixteen years, of good constitution and habits, jumped from a fence on the stump of a twig some half an inch in diameter, which made a wound in the ball of the right foot three-quarters of an inch deep. Twelve days after the accident he complained of feeling lame and stiff; during the night was awaked by a violent spasm; the next day complained of stiffness and soreness of the muscles of the neck and throat, and pain at the serobiculus cordis; the following night, during sleep, was seized again with spasm; and the next morning, when I was sent for, I found him complaining of pain in the above region, great rigidity of the whole muscular system, attended with difficulty in swallowing, and constraint in moving the head and jaws, and in articulating. During the spasm, the body was curved backwards and thrown to one side, the dyspnoea

was considerable, pulse full and slightly accelerated, skin warm and moist, bowels costive, urine scanty and high-coloured.

Administered a purgative, which was assisted by enemas. The patient was then put upon the free use of opium in the shape of Dover's powder, and the bowels kept open by the use of cathartics and injections of $\frac{3}{4}$ j. tinct. assafoetida in half a pint of soapsuds, repeated as often as the preceding one came away. This treatment was continued for four days, during which time he gradually grew worse. The tetanic rigidity and spasm increased until the sixth day; when, finding that he must die unless something farther could be done to allay the pain and extreme spasm, and viewing the difficulty as being an irritation of the spine, perhaps connected with congestion of the membranes covering the spinal marrow, I determined to apply ice to the head and the whole length of the spinal column, since the whole muscular system was affected. I did so, and in ten minutes had the satisfaction of seeing the pulse come down from 110 to 75, and all the urgent symptoms relieved; the rigidity was gone, and he had but one spasm after the ice was applied; his bowels were kept open, and assafoetida injections were continued twice a day, to allay the irritability of the nervous system, manifested by slight twitchings. No medicines were given by the mouth. The wound entirely healed, and in three days the patient was discharged cured; and his health since has been as perfect as before the attack.

Amputation at the Shoulder-Joint.—Dr. FREIOTT, of Troy, reports (*New York Journ. Med.* Nov. 1853) the case of a man, forty-six years of age, whose arm was injured by a bank of earth falling upon him. His humerus was comminuted three inches below the head, "the integuments and muscles were torn away, leaving the bone exposed from the anterior and external side of the neck of the humerus, from a line one inch posterior to the acromion process, to the insertion of the pectoralis major muscle." The patient was much depressed, and stimulants were freely given. So soon as reaction was induced, Dr. F. removed the limb at the shoulder-joint. The ligature on the axillary artery came away on the 23d day, and when the report was made, about two months after the operation, the wound had nearly cicatrized.

Femoral Exostosis.—Dr. L. A. DUGAS records (*Southern Med. and Surg. Journ.* Dec. 1853), an interesting case of large exostosis of the right femur in a man twenty-eight years of age. The tumour was exposed by an incision about eight inches long, and sawed off. For a few hours everything promised well, but after that, the patient suffered from jerking of the muscles of the limb; and the patient died on the fourth day after the operation from "infection induced by the rapid decomposition of the tissues that had been so long exposed to contusion, and which were found lacerated and filled with black blood and grumous matter."

Dr. Dugas gives a summary of six cases, making with his own seven, of which three had been operated on successfully, two had resulted fatally, and in the other two the result was uncertain.

A White African.—Dr. E. C. Hood, of Whiteville, Ga., records (*Southern Med. and Surg. Journ.* Aug. 1853) the following example of this:—

"Charlotte is a woman 34 years old, and living within one mile of me, whose skin is as fair as that of any lady of Caucasian blood, and who was as black at the age of 11 as any African. She says her health has been uniformly good, with the exception of one 'spell of bowel complaint,' which occurred when she was about ten years old; some time after which, a white spot appeared on her forehead, which gradually though slowly enlarged. In the meantime, other spots appeared on different parts of the face, which also increased in size, until the whole face became perfectly white. The change in the color of the face was completed in about six years; and she says that after her face 'turned white,' her whole body changed in one week. I saw her frequently during the metamorphosis, and noted its progress, during which time her countenance was so hideous that she was a fright to all the juveniles of the neighbourhood.

"She is at present strictly a white woman, except her eyes and hair, which are those of the negro; the latter, however, being whitish all around the margin. The skin freckles, and is easily blistered by the sun. She is a good servant, has ordinary intelligence, has had ten healthy children, all of whom are as black as their father, who is a full-blooded African."

"The above are the facts of this 'strange freak of nature.' Was the change a pathological or a physiological one? I am inclined to the latter opinion, because the subject was in good health, and the skin seemed to be so during the change. But what strange whim possessed the absorbents to remove the pigmentum nigrum?

"These are questions I shall leave to be answered by those who have more taste and talent for speculation than your humble servant."

American Medical Association.—The seventh annual meeting of the American Medical Association will be held in the city of St. Louis on Tuesday, May 2, 1854.

The secretaries of all societies and of all other bodies entitled to representation in the Association, are requested to forward to the undersigned correct lists of their respective delegations *as soon as they may be appointed*; and it is earnestly desired by the Committee of Arrangements that the appointments be made at as early a period as possible.

The following are extracts from article second of the constitution:—

"Each local society shall have the privilege of sending to the Association one delegate for every ten of its regular resident members, and one for every additional fraction of more than half of this number. The faculty of every regularly constituted medical college or chartered school of medicine shall have the privilege of sending two delegates. The professional staff of every chartered or municipal hospital containing a hundred patients or more, shall have the privilege of sending two delegates, and every other permanently organized medical institution of good standing shall have the privilege of sending one delegate."

"Delegates representing the medical staffs of the United States Army and Navy shall be appointed by the chiefs of army and navy medical bureaux. The number of delegates so appointed shall be four from the army medical officers, and an equal number from the navy medical officers."

The latter clause, in relation to delegates from the army and navy, was adopted as an amendment to the constitution at the last meeting of the Association held in New York, in May, 1853.

E. S. LEMOINE,

One of the Secretaries, St. Louis.

The medical press of the United States is respectfully requested to copy the foregoing.

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TO READERS AND CORRESPONDENTS.

The following works have been received :—

Medico-Chirurgical Transactions. Published by the Royal Medical and Chirurgical Society of London. Vol. xxxvi. London: 1853. (From the Society.)

The Modern Treatment of Syphilitic Diseases, both Primary and Secondary; comprising the Treatment of Constitutional and Confirmed Syphilis by a Safe and Successful Method. With numerous Cases, Formulae, and Clinical Observations. By LANGSTON PARKER, Surgeon to the Queen's Hospital, Birmingham. The third edition, entirely rewritten. London: 1854. (From the Author.)

Practical Observations on Gout and its Complications, and on the Treatment of Joints stiffened by Gouty Deposits. By T. SPENCER WELLS, F. R. C. S., etc. London: John Churchill, 1854. (From the Author.)

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The Stethoscope. Edited by P. C. GOOCH, A. M., M. D. December, 1853.

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New Orleans Medical News and Hospital Gazette. Edited by Drs. CHOPPIN, BEARD, SCHLATER, and BOYER. March, 1854.

An engraving representing HARVEY demonstrating to Charles I. his theory of the Circulation of the Blood. (From C. I. Price & Co., No. 7 Hart's Buildings.)

We must call the attention of our readers to this splendid engraving by G. Bellamy, from a painting by R. Hannah.

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E R R A T U M.

Page 267, 20 lines from top, for "two-third inches," read "*two to three inches.*"

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ART. I.—*Observations on the Black Vomit; its Nature and Composition, and its Value in the Diagnosis and Prognosis of the Yellow Fever.* By R. LA ROCHE, M. D., of Philadelphia. [With two plates.]

In the preceding number of this journal, some remarks were offered respecting the various circumstances connected with the ejection of the black vomit; the value of the symptom in a diagnostic and prognostic point of view; the external and physical characters of the fluid—its colour, taste, consistence, and general appearance—as also the phenomena by which it is preceded and accompanied. In conclusion, it was stated that a considerable difference of opinion existed in regard to the nature and composition of the fluid; that some pathologists viewed it as little more than vitiated bile—sometimes, though not necessarily, mixed with blood; that others regarded it as of hepatic origin, but not of a bilious nature—the product of a perverted or vitiated secretion of the liver; that others, again, considered it as the result of the morbid secretion of the inflamed vessels of the stomach, which, in a healthy state, secrete mucus and the gastric juice; and, finally, that a different and more numerous set maintained that it is the product of an hemorrhagic effusion from the capillary vessels of the mucous coat of the stomach and bowels; in other words, blood—real, though somewhat modified in its texture.

In resuming the consideration of the subject, the author, after an attentive survey of all the circumstances connected with the discharge of the matter in question; of the symptoms and pathology of the diseases in which it is observed, of the anatomical lesions revealed on dissection, and of other characteristic peculiarities, has no hesitation in coinciding with those who advocate the last of the above-mentioned opinions. This opinion derives countenance from a variety of facts and circumstances of both a negative and positive character.

1. The impossibility, in the present state of our knowledge, and on a full

consideration of the characters of the fluid, of adopting either of the other theories stated; and, 2. The result obtained from a careful examination of the several materials which enter into the composition of that fluid.

The fallacy of the ancient belief that black vomit is vitiated and black bile, was pointed out as far back as the days of Dr. Henry Warren,¹ of Barbadoes, to whose work I have already referred, and has been demonstrated in the most positive manner by several of our immediate predecessors and contemporaries, Physick,² Bancroft,³ Ffirth,⁴ Monges,⁵ Lowber,⁶ Robertson,⁷ Dickson,⁸ and Arnold.⁹ The theory is disproved on the following grounds:—

1. The yellow fever is not a disease of bilious character. In it, as a general rule, the secretion of bile, so far from being increased, is greatly restrained. Indeed, it often happens that, after a day or two, the formation of the fluid is nearly if not completely suppressed; and while the absence of bile in the evacuations is invariably to be viewed as a sign of dangerous import, the re-appearance of the fluid is always hailed as an indication of amendment. Such being the case, it would be impossible, supposing the black vomit to be bile, to account for its proving so generally the forerunner of a fatal issue.

2. The quantity of black vomit discharged is generally too large at each act of ejection, and then too frequently repeated, to justify the belief that the matter proceeds from the liver or gall-bladder.

3. The true black vomit is often found to be voided in large quantity; and the stomach, after death, is discovered to contain much more in cases in which the liver is found either healthy or in a condition precluding the possibility of its secreting bile or any fluid approximating to it. The idea of an apparently *healthy* organ secreting immense quantities of a most *unhealthy* substance, is scarcely to be entertained. The same may be said of the supposition of an organ, exsanguine, pale, and brittle, more or less filled with oily matter, often in a condition very similar to that of a common fatty liver; exhibiting little or no appearance of containing bile on being sliced—as is most generally the case in the yellow fever—pouring out pints or gallons of such a fluid.

4. The stomach, or intestines, or both, have been found at times filled with this black matter, while in the same subject the bile in the gall-bladder, biliary ducts, or the pori biliari, was in its natural state, or presented no analogy, as regards colour and appearance, to the former fluid. Dr. Physick has found the gall-bladder filled with a fluid of a brickdust colour, or a light green, or transparent and colourless or purulent colour. Dr. Lowber informs us, he saw more than thirty ounces of black vomit in the stomach of a subject

¹ A Treatise concerning the Malignant Fever in Barbadoes, p. 39.

² Med. Repos. v. p. 129.

³ An Essay on the Disease called Yellow Fever, p. 27.

⁴ A Treatise on Malignant Fever, p. 37.

⁵ North Am. Med. and Surg. Journ. ii. pp. 58, 59.

⁶ Med. Mus. v. p. 26.

⁷ Med. Examiner, Oct. 1839.

⁸ Essays, i. p. 356.

⁹ A Practical Treatise on the Bilious Remit. Fever, p. 38.

whose gall-bladder was small and contracted, and contained a very inconsiderable portion of viscid bile—results which could not obtain were black vomit the product of the liver.

5. The pylorus, in several instances, has been found closely contracted, and yet the stomach contained black matter.

6. In external appearance, the matter of the black vomit differs greatly from dark-coloured or black bile. The latter is of an homogeneous nature—smooth and glossy—and when examined closely, is found to be of a really black or deep green colour; whereas the former is, as already stated, in the majority of cases, a compound of flaky or granular particles, of a dark brown rather than black colour, floating in a thin, pale, or reddish fluid. Even when the black vomit is of a thick and tarry appearance, it may be distinguished from it by other signs.

7. When mixed with water, the two substances produce dissimilar effects. The bile unites readily to the water, imparting to it a greenish tinge; while the grounds of the black vomit float on the surface of the liquid in the same manner as bran deprived of its mucilage, or rather as mahogany sawdust.

8. If the darkest coloured bile be spread thinly over a white surface, such as the skin, it loses the colour it had in its accumulated state, and appears of a yellowish-green colour; but if the black vomit is treated in the same way, it retains its black, or dark brown appearance.

9. When a bit of paper or white muslin is dipped in these two substances, it is very differently coloured by them. The bile imparts a greenish, the black vomit a reddish tinge to it. We have seen that this fact was long ago pointed out by Warren. Since his time it has been referred to by Monges, Robertson, and others.

10. When bile is added to black vomit, it alters its nature so much as to give it an appearance different from that which it had before.

11. The black vomit differs very much from any mixture that can be made of dark-coloured bile with any of the fluids found in the stomach or intestines.

12. The bile and black vomit differ as to taste. The former always imparts a bitter taste, of greater or less intensity; the other is more or less insipid or acid.

13. The black vomit is sometimes found to adhere to and line those portions of the mucous membrane that are inflamed or congested, leaving the other and healthy parts uncovered. In some cases none of the fluid is found loose in that organ, though a large portion of the internal surface is thickly smeared over in that way. When scraped off, it cannot be made to adhere again in the same manner; from which we may infer that it has exuded from the vessels to which it is attached, and has not been poured into the stomach from some other organ. Bile is never found to adhere in this way to the lining membrane of the stomach, and especially to select in preference

its inflamed portions. It tinges, and mixes with, the mucus secreted by these parts.

14. Although in cases in which black vomit has been discharged freely, or in which, though not ejected, it has been found after death, dissection reveals an engorged state of the capillary vessels;¹ yet in very many, probably the majority of instances, the engorgement of the vessels appears to be lessened or removed by the formation and ejection of the matter. Such was the opinion, long ago expressed, of Dr. Physick.

"The secretion of black vomit," as is remarked by that eminent surgeon, "appears to be one of the most common modes in which violent inflammation of the stomach has a disposition to terminate. Death, however, in general, takes place before it entirely disappears. I have seen many cases which show that the inflammation is diminished by the secretion, of which it will be sufficient to mention the following: On opening a stomach, one-half of it was coated with adhering black matter, while the other half was free from it; on scraping it off clean, and comparing the part underneath with the other half of the stomach which had not secreted any black matter, the difference in the degree of inflammation was very striking, being much the best in the part which had been covered with the black substance. In some cases, where the vomiting of black matter had been considerable in quantity, or continued for several days, the inflammation was found very faint indeed."²

This tendency of black vomit to relieve the engorgement of the capillaries has been noticed by very many other writers.³ Need it be remarked, that the effusion of bile, its ejection from, or its accumulation in the stomach, has never produced any effect of the kind?

15. Facts innumerable may be adduced to show that the black vomit is formed in the stomach itself, and is not poured in that viscous from the liver, or any other organ. "The colouring matter may be, and often is," as Dr. Dickson remarks, "seen in the vessels of the stomach itself, from the mouths of which it may be pressed without difficulty by the finger."⁴ The same fact has been recorded by Dr. Arnold, of Savannah.⁵ Dr. Evans relates a case in which a large quantity of black vomit was ejected and a great deal found in the stomach after death. "Its mucous coat [of the stomach], washed and examined with care, was of a gray colour throughout, except that it was speckled with innumerable black spots, produced by this black matter, stopping up the mouths of the exhalant vessels, and easily picked out with the point of a needle."⁶ Analogous statements are made by Ffirth, p. 37; Kelly, *Am.*

¹ Harrison, N. O. Journ. ii. p. 139; Hayne, Charleston Journ. vi. p. 628; Ffirth, 36; S. Jackson, 78.

² Med. Reposit. v. pp. 131, 132.

³ Rush, Fever of 1793, p. 94; *Ib.* Works, iv. p. 44; Townsend, p. 191; Copland, iii. pp. 143, 161; Parrish, Med. Museum, iii. pp. 168, 188, 190; Lowber, *ib.* v. p. 19; Blair, p. 92; Harrison, N. O. J. ii. p. 139, note; Rochoux, p. 355; Waring, p. 52; S. Jackson, p. 78.

⁴ Med. and Phys. Journ. N. S. v. p. 209; Essays, p. 356.

⁵ Amer. Journ. iv. p. 318, N. S.

⁶ Pages 33, 216, 249-275.

Journ. xiv. N. S. p. 382; Arnold, of Jamaica, p. 38; Gilkrest, *Cyclop.* ii. pp. 274, 275; R. Armstrong, 178. "The veins of the stomach," says Dr. R. Jackson, "were generally turgid; the villous coat was abundant at some places, loose and in the act of separating at most; the surface underneath the separated villi was streaked with bright or dark red, or were studded with clusters of points not unlike measles; most numerous at the upper orifice, but not confined to it. In some instances, the mouths of canals were visible at different points of the interior surface, yielding a dark-coloured fluid by pressure," i. p. 79.¹ Dr. Physick, long ago, pointed out that cases occur in which the inner coat of the stomach is as black as the black vomit, and that, in many such cases, no black matter is found in that viscus; an effect evidently due to the retention of the matter in the vessels, inasmuch as the dark colour of the membrane is lessened when the matter is poured out in the stomach.²

16. And, finally, the black matter, or one similar to it in its physical characters, and doubtless in nature, has been found at times to be formed in or to proceed from parts where bile in substance cannot, by any possibility, penetrate, and whence it cannot be ejected. It has not unfrequently happened, for example, that the application of a blister, especially in the advanced stage of the disease, has been followed by a copious exudation of fluid resembling in all respects the matter ejected from the stomach. Dr. Monges, a competent authority in such matters, states his having seen this in 1820.³ A similar fluid has often been found in the bladder.⁴ It has been found exuding from the nostrils, fauces, tongue, eyes, ears.⁵ It has been discovered in the pleural cavity.⁶ Dr. Merrill mentions its having been seen in the peritoneum. The following history of a case which occurred in the practice of the late Dr. Monges, during the epidemic of 1820 in this city, and which I, myself,

¹ The yellow fever is not the only disease in which the above phenomenon presents itself. It occurs sometimes in fatal cases of hematemesis, or in complaints which have been attended with discharges of blood by the stomach or bowels, or both. Portal, in his essay on Melæna, published originally in the *Memoirs of the Medical Society of Emulation*, of Paris, and since inserted in the second volume of the collection of his *Essays*, relates several highly interesting cases of this disorder in which the patients vomited and voided per anum a greater or less quantity of black fuliginous fluid. This, the able and celebrated physician ascertained to be not bilious or atrabilious matter, but altered blood. On dissection of three of these cases, the fluid could be easily forced out of the engorged capillaries. It may not be uninteresting to state, that one of these individuals was no less a personage than the Comte de Vergennes, Minister of Foreign Affairs under Louis XVI., and to whom this country was so much indebted during our revolutionary struggle.—*Mémoires sur Plusieurs Maladies*, ii. pp. 188, 162, 170, 208.

² *Loc. cit.* p. 181.

³ *North Am. Journal*, ii. p. 59.

⁴ Devezé, p. 66; Palloni, *Edin. Journ.* ii. p. 588; Lewis, *New Orleans Journ.* iv. p. 159; Rufz, p. 19; Kelly, *Am. Journ.* xxiv. N. S. p. 383; Harrison, *New Orleans Journ.* ii. p. 138; Nott, *Am. Journ.* ix. N. S. p. 280.

⁵ Lewis, *New Orleans Journ.* i. p. 300; *Ib.* iv. p. 159.

⁶ Parrish, *loc. cit.* iii. p. 142; Merrill, *New Orleans Journ.* viii. p. 6.

witnessed, presents an apt and striking illustration of the last-mentioned fact. The patient was an old lady, seventy years of age, who resided at a considerable distance from the infected district. She had for some time previous been confined to her house, and had seen no one who had mixed with the sick, and consequently, had in no way been exposed to any of the real or reputed causes of the disease, of which, indeed, her attack presented few of the ordinary pathognomonic phenomena. She was seized very early in the morning with violent colic, attended with fever, great tenderness over the abdomen; flushed face, &c. She was bled at 10 o'clock; at 11, vomited a large quantity of coffee-ground matter, and died in about twelve or fifteen hours from the commencement of the attack. The next morning her body was examined by myself in the presence of several of the most respectable and experienced physicians of the city, Drs. Otto, Hewson, Gallagher, and Monges, who all coincided in the opinion that the matter vomited, as also that which continued to be discharged from the nostrils, bore all the characteristic appearances of that ejected in the yellow fever—a disease with which they were all perfectly familiar.

"The stomach, as well as the intestines were found to contain a large quantity of a similar substance. The cavity of the peritoneum being likewise filled with a large portion of it, we at first suspected the existence of an opening in the intestines, by which an effusion had taken place. After a careful and minute examination, however, no such opening was discovered. Our attention was now directed to the condition of the peritoneum itself, which was highly inflamed. It was, moreover, found that the substance in question exuded from its surface—the membrane, in many places, especially the portion of it which covers the liver, being coated so thickly with the grounds that these could readily be scraped off with the back of a scalpel."¹

With the preceding facts and considerations in view, there can be no difficulty in perceiving the impropriety of regarding the black vomiting as vitiated bile, and in acknowledging its being formed in the stomach itself. Nor is it less certain, that an attentive examination of the subject will lead to a rejection of the opinion which ascribes this fluid to the secretory action of the diseased vessels of the stomach and intestines.

1. Before we can adopt this opinion with any show of reason, it would be necessary to explain satisfactorily how the same fluid, or fluids bearing so strong a resemblance to each other as to be regarded as identical by the most competent judges, can be secreted by the capillaries of parts differently organized, and which in their natural state, or during the course of ordinary diseases, produce fluids of dissimilar appearance or nature. If the black matter ejected from, or found in the stomach and intestines is the result of a secretory process, the same kind of fluid issuing, not only from other portions of the mucous surface, but from the skin and serous membranes must be a secretion too. And yet these parts differ widely from the former, both as regards their organization and the nature of their ordinary products in health and disease.

¹ Monges, *op. cit.* p. 60.

2. Dr. Nott has well remarked, in objection to the theory before us, that the black vomit is most commonly seen in little particles or masses of various magnitude, which could not pass through a secretory capillary.¹

3. It is admitted that the villous coat and the glands situated beneath it—the intervascular cells and their nuclei—~~were~~ alone endowed with the secretory power in the stomach. Now facts will be adduced as we proceed, which show that the black vomit is unconnected in its formation with those parts; while by the advocates of the theory of secretion, it is referred to, and, as we have seen, has been detected in capillary vessels which are not endowed with any power of the kind.

4. Such a detection affords no argument in favour of the theory of secretion; for, were the black vomit the result of such a process, it could not be found in the vessels of the circulatory system; for secretions, as is remarked by Dr. Michel, “are never seen in the bloodvessels of a part, not even with the aid of a magnifying power. The function is the result of the vital processes of the parts above mentioned, which elaborate the materials they derive from the blood into different products, then burst and discharge them.”² It is evident, therefore, that if black vomit were the product of an operation of the kind, it would not be found collected in the capillary vessels, or that it would not be the means, by its discharge, of relieving the engorgement of these.

5. The very large, and even extraordinary quantity in which the black vomit is sometimes ejected, would alone constitute a strong objection to the theory of secretion; as we can find nothing to be compared to it in the healthy or diseased operation of any regular glandular or secretory structure.

6. The difficulties by which the theory of secretion, as connected with the formation of black vomit, is encompassed, are not removed by calling the fluid a sanguineous secretion, as the process by which such a secretion is produced, and the nature of the parts in which it is elaborated, cannot differ much from what obtains in regard to products having less or none of the characteristics of blood. Neither in the one case nor in the other can the fluid be formed by the capillaries. It may be remarked that, by the advocates of the secretory nature of the black vomit, no stronger reasons in favour of their views have been assigned than that the fluid differs somewhat from ordinary blood, and that it often presents a thick consistence and adheres to the inside of the stomach, forming a black coating of considerable thickness, and that it is found after death collected in the capillary vessels of the affected organ. But, besides that, it can be shown that the black matter is formed under circumstances precluding all idea of its being the result of a secretory process; the facts alluded to may be more readily explained by referring the formation of the fluid to the operation of other agencies.

¹ *Loc. cit.* p. 281.

² *Charleston Journ.* viii. p. 347.

7. The matter of the black vomit bears no resemblance to any known product of glandular action.

8. It is only met with in that state of the system, and in that stage of the disease, when the secretory process in all other parts is generally or often suspended, or greatly impaired.¹

9. It not unfrequently happens, that the stomach or duodenum contains coffee-ground matter, while the intestines are more or less filled with coagulated blood.

10. In some instances, discharges of black vomit and of blood alternate—in others, again, the black vomit is found mixed with blood in the stomach after death; in another set of cases, coagula of blood are found in the intestines; “the surface having the appearance of the common black matter, while on cutting into them the centre is found to consist of red solid coagulum.” “In such cases,” as Dr. Monges remarks, “in order to adopt the opinion of secretion, we must believe that the same vessels occupied in the secretory process, afforded at the same time passage to a portion of common blood; for we can hardly admit that the mucous follicles are the organs secreting the black matter.”²

11. Nor could such a product as the black vomit—supposing it to be a secretion—be thrown out from a surface as little altered in appearance as is the mucous membrane in a large number of instances. There is undoubtedly diseased action going on in the stomach—but usually this amounts to disturbance of function, though not of structure—a condition of parts perfectly compatible with the formation of black vomit. “It does not,” as is remarked by Dr. Michel, who has called attention to these facts—“it does not by any means imply organic lesion, without which destruction of the tissues themselves to a considerable extent, it could not exist as a secretion; for I believe that a *secretion* of such appearance as the vomit, would plainly betoken a state of disease reaching even unto sphacelation.”³

Enough has now been said to prove beyond doubt that the black vomit is neither altered bile nor the result of a secretory action on the part of the gastro-intestinal capillary vessels. In view of this, and taking into consideration various facts to which attention is next to be called, we shall be led to the conclusion that it is nothing but blood in a peculiar state of alteration. That it is the product of the stomach itself, when ejected from that organ, or of other surfaces whence it may proceed—the intestinal, urinal, pleural, peritoneal, &c. has been shown. That the black vomit, or a fluid like it, proceeds from the capillary vessels of these parts; that it may be, and has been pressed out of those vessels after death, and is often seen then and during life oozing out of the capillaries of parts accessible to sight, as the fauces, nostrils, skin, eyes, are facts, which, as we have seen, are too well established to be denied, and must of themselves go far to prove the sanguineous nature of the fluid,

¹ Lewis, N. O. Journ. iv. p. 159.

³ Op. cit. viii. pp. 347, 348.

² Op. cit. p. 61.

especially when we bear in mind the reasons assigued for rejecting the idea of its being the product of a secretory action of those vessels. For, if we refuse to admit that the fluid issuing from or pressed out of these has been secreted by them, we have no alternative than to regard it as blood; the only substance contained in these, whether in health or disease. To the same conclusion we naturally arrive when we take into consideration the fact that the black vomit is the product, in some cases, of gastric inflammation occasioned by the ingestion of acrid poisons, or by other causes; and we know that in inflammation resulting from such agencies—or indeed from any agency—the vessels are engorged with blood, and nothing else; and that therefore what proceeds from them, whatever peculiar appearance it may assume, must be blood also. The same must be true as regards the contents of the capillary vessels in inflammation or congestion of the stomach or other parts in yellow fever. If we find these filled with red or dark fluid, and if their engorgement and dark colour are relieved by the discharge of that fluid, we may safely infer that the latter was blood, for hemorrhage is one of the common modes in which inflammation has a tendency to terminate; and if the red or dark fluid which occasions the relief in ordinary cases is admitted to be of the nature in question, there can be no reason to doubt that, when the effect is obtained in yellow fever, the fluid discharged is of similar kind. Nor is this all. We have seen that black vomit very generally adheres to those portions of the mucous membrane of the stomach or intestines that are inflamed or congested, or from which it was effused, leaving other parts uncovered. In this, we have a striking proof of its analogy to undisputed blood, which exhibits a like disposition to adhere to inflamed surfaces from which it had exuded.

Again: we have seen that vomiting of black matter sometimes alternates with the discharge of pure blood, the ejection of black vomit preceding that of blood, or the reverse; that while the stomach or duodenum contains the former, the intestines are filled with coagulated or fluid blood; that, in some cases, portions of fluid, more frequently of coagulated blood are found, the surface only of which presents the granular appearance.

These facts cannot fail to point out the sanguineous nature of the coffee-ground matter constituting the black vomit; inasmuch as it is not probable, as already remarked, that two distinct fluids—the one blood, and the other a secretion—should be thrown out from the same vessels in rapid succession, or simultaneously, or that the one should be smeared over by the other. Dr. Lewis remarks of the two fluids: "They are thrown up together; run into each other by perceptible degrees, just in proportion to the quantity of blood exhaled, or as it is intermixed with the secretions of the stomach and intestines."¹ The same writer states the following fact: After remarking that in a large proportion of cases unchanged blood is vomited, he adds: "We

¹ New Orleans Journ. iv. p. 159.

have seen three brothers vomiting at the same time; one of them, slightly coagulated blood, resembling wine lees; another, fresh blood; and the third, the coffee-ground vomit. The young men were all purging blood at the same time."¹ Is it probable, that while in these three cases, the intestines were giving vent simply to blood, the stomach in each should have furnished a distinct fluid? More natural is it to conclude, that this fluid in all was fundamentally the same. It may be stated, in addition, that blood which when ejected from the stomach presented its usual appearance, has been occasionally found to assume the peculiar characteristics of black vomit after being exposed some time to the influence of the atmosphere.² Let me remark besides that black vomit imparts to muslin or paper a red colour, very similar to that resulting from dark blood.

That black vomit must be regarded as consisting in great measure of altered blood is still more satisfactorily proved by the fact that the latter may be, and has often been, converted artificially into a fluid bearing the most striking analogy to that ejected in the closing stage of the yellow fever. This fluid, as we have seen, contains usually, if not always, a free acid—the hydrochloric—the presence of which is evidenced by the taste as well as by the effervescence produced with the alkaline carbonates and other chemical tests. Now, if we impart to pure blood the same property by the addition of the aforesaid, or indeed of any other acid, we shall find it to assume, to a greater or less extent, the characteristic appearance of the black vomit. These results were pointed out long ago. Dr. Cathrall, the account of whose experiments has now been before the public more than half a century, while advocating a theory adverse to the one contended for, admits that when blood is combined with such acids, "and the mixture (is) diluted with an infusion of green tea, it resembles in many respects the black vomit;" and that "the odour arising from this combination so much resembles that arising from black vomit which had been kept for several years, that he could hardly distinguish one from the other."³ The same experiment, slightly varied, has since been performed, and with similar results, by Dr. Lyon,⁴ by Dr. Hope,⁵ by Dr. Stevens,⁶ by Dr. Riddell,⁷ and others.

Dr. Nott, of Mobile, took a few drachms of blood from the heart of a patient dead of yellow fever, and added to it four or five drops of muriatic acid, diluted with a drachm or two of water, and shook them well together; the black colour was produced instantly.

"The same experiment was tried repeatedly on the blood of yellow fever patients, and on that drawn from a patient with pleurisy by cups, and the effect was invariably the same. Any one," he adds, "wishing to form a cor-

¹ *Ib.* iv. p. 159; *Ib.* i. p. 300.

² Rochoux.

³ *Essay on Black Vomit*, p. 26. See *Trans. of Philos. Society*.

⁴ *Lond. Med. and Phys. Journ.* for 1828, N. S. iv. p. 100.

⁵ Cited by Dr. Lyon.

⁶ *On the Blood*, pp. 360, 422.

⁷ *New Orleans Journal*, ix. p. 420.

rect idea of black vomit, has only to treat blood in this way, and add a little gum-water or flaxseed tea to represent the mucus of the stomach, and his curiosity will be gratified; and no one can tell the artificial from the genuine black vomit."¹

"I once, with Dr. Thomas Hunt, of this city," says another distinguished American writer, Dr. Harrison, of New Orleans, "performed the following experiment: A man was brought into the dead-house, while we were there. Upon examination, there was no black vomit in his stomach, but a whitish acid-smelling liquid, amounting to about half a pint. Into this stomach, containing this liquid, some blood from the vena cava was poured. At first, we thought the experiment had failed, and we returned to other investigations. Upon examining the fluid, however, after the lapse of ten or fifteen minutes, it was impossible to distinguish it from specimens of black vomit with which we contrasted it."²

A late writer on the yellow fever, Dr. Blair, remarks that, "blood allowed to drop, as in epistaxis, into water acidulated with muriatic acid, forms a very tolerable specimen of some descriptions of black vomit."³ Dr. T. Y. Simons, of Charleston, while Professor of the Practice of Medicine in the medical school of that city, in 1833, was in the habit of performing the experiment of making artificial black vomit before the class in attendance.⁴ Dr. Michel, of the same city, remarks that, by carefully adjusted proportions of acid, it is possible to obtain all gradations of shades in the blood.

"But what is still more satisfactory in the experiment, the blood immediately curdles, as it were, into little flocculi, hardly dissimilar from those of the black vomit. It is difficult always to produce the coffee-ground sediment, since it is impossible to apportion certain particles of blood to those of the acid, as when it oozes in disease from the tissues. I have, however, been able to produce artificial black vomit so perfectly similar in this respect to that fluid itself, that their identity was at once apparent. During my attendance on a case of haemoptysis, in which slight mouthfuls of blood were coughed up at a time, I obtained about a drachm, which was added to about six ounces of water with a few drops of hydrochloric acid, which, upon being well shaken, developed all the characteristics of black vomit. It was allowed to rest, when the black flocculi formed the usual sediment."⁵

The same effect is obtained by other acids, by chloride of platinum, weak tincture of iodine, and other substances.⁶ Sir William Pym relates that, being attacked with hemorrhage from the fauces (in 1806), this was attempted to be stopped by applications of spt. terebinth. Having swallowed much blood and turpentine, he threw it up, and was struck with the resemblance it bore to black vomit.⁷

The change in question, and from the same cause, has been observed under other circumstances. Dr. Carswell, in experiments made several years ago, on

¹ On the Pathology of Yellow Fever, Am. Journ. ix. N. S. p. 282.

² New Orleans Journal, ii. p. 148.

³ Yellow Fever of British Guiana, p. 81.

⁴ Michel, Charleston Journal, viii. p. 343.

⁵ Ibid. p. 343. ⁶ Riddell, *loc. cit.* p. 420.

⁷ Bulam Fever, p. 223.

the chemical dissolution or digestion of the walls of the stomach after death, found that, in cases in which the coats of the stomach were dissolved by the action of acids, a peculiar change in the colour of the blood contained in the veins of that organ was found to have occurred. It was observed to accompany the chemical dissolution of the walls of that organ, and though less frequent in its occurrence than the latter, was not less obviously the effects of the same chemical cause, for there was no discolouration of the blood when there was no softening or dissolution of the coats of the stomach; 2, the discolouration of the blood was observed only in the vessels situate near the parts softened, and 3, both changes were, *cæteris paribus*, nearly in the same ratio as to degree and extent.¹ The same able physician elsewhere calls attention to the fact that if we kill an animal—a rabbit, for example—or open it while alive, and during the process of digestion, the fundus of the stomach is always found to contain a quantity of gastric acid; and remarks that, “if arterial or venous blood is allowed to flow into the stomach from some of the neighbouring vessels, so soon as it comes in contact with the digested portion of the food, or that in which the gastric acid is most abundant, its natural colour is almost immediately changed to deep brown or black. The rapidity with which this change takes place in the colour of the blood, as well as the degree and extent to which it proceeds, varies with the strength of the gastric acid and the quantity of the blood on which it is made to act. When,” he continues, “the digested acid fluid, or the gastric acid alone is removed from the stomach in which it was found, and is put into another stomach, or other organ, the vessels of which are conspicuous and filled with blood, this fluid very soon undergoes the same change of colour which we have said takes place when it is poured upon the digested food, and consequently, when in immediate contact with the chemical agent by which this change is effected.”²

But this must suffice. Well may it be remarked that the production, in this manner, of a fluid, the properties, colour, and appearance of which are in so remarkable a manner similar to black vomit, certainly constitutes a most ingenious experiment;—one, indeed, so far as ocular demonstration of a general character is concerned, which is perfectly conclusive. (Michel.)

Evidently satisfactory, however, as the closeness of the analogy of the artificial black vomit to the true is, and recognized though it be by individuals—not one, but many, whose familiarity with the characteristics of the latter could not but be a warranty of the correctness of their opinion—it has been denied; and there are not wanting those, among intelligent observers, too, who maintain the possibility of pointing out a difference between the two fluids. In evidence of this dissimilarity, Dr. Kelly remarks that, while the true black vomit has a flaky appearance, “like smoky mica,” the artificial has more of

¹ Rech. sur la Dissolution Chronique ou Digestion des Parois de l'Estomac après la mort. Journal Hebdomadaire, 1830, No. 87, p. 350; No. 91, p. 517; Cycl. of Pract. Med. iii. p. 99.

² Cycl. of Pract. Med. article Melanosis, iii. p. 100.

the coffee-ground appearance; the addition of a certain quantity of sulphuric ether to the former will cause it to float on the surface, "having the appearance of a dark cobweb or flake of dead matter;" while, by this means, the artificial is made to sink to the bottom, never more to rise. Nitrate of silver changes the black vomit "to a cream-white colour, every dark speck being removed, while the artificial substance retains its colour, being precipitated to the bottom of the vessel. Besides, if black vomit consisted of blood changed by the action of an acid, it is difficult to account for those cases in which, at the same time that that fluid is ejected from the stomach, pure blood is discharged from the bowels; inasmuch as we can see no reason why the acid secretions acted upon the blood in the stomach and not in the intestines."¹

Plausible as all these objections may appear, they will be found, on close examination, to be but little calculated to shake our belief on the subject of the close analogy in question. If Dr. Kelly has not been able to obtain the flaky deposit in the artificial black vomit, and found that the latter has more the coffee-ground appearance, Dr. Michel arrived, as we have seen, at different results, and indeed found it "difficult always to produce the coffee-ground sediment." Dr. Nott² also remarks that, by the addition of acid to blood, we do not obtain coffee-grounds, "which are due to the coagulation and agglomeration of particles." Besides, even were it true, that these coffee-grounds are alone procured, the analogy would still hold; for the real black vomit often presents no other appearance; and all that could be said on the subject is, that by the means in question we can imitate one of the forms of black vomit, and not all. If, in some cases, black vomit is ejected from the stomach, and pure unaltered blood from the bowels, it is, as we shall see, simply because the effused fluid does not encounter in the small intestines, whence those discharges take place, the same modifying agencies it meets with in the stomach. Furthermore, whatever may be the difference as regards the effects of sulphuric ether and nitrate of silver on the real and artificial black vomit, the question of the identity of these is set at rest by the results of microscopical examination; for an account of which we are principally indebted to Dr. Riddell,³ of New Orleans, and Dr. Michel,⁴ of Charleston. In speaking of the appearance exhibited by the artificial substance, the latter gentleman says in conclusion, "the blood was so dissolved as to colour the mass as usual, and the entire aspect was, in every particular, so completely analogous to black vomit, that an observer must inevitably be deceived as to whether he is examining the true or artificial product, for they are microscopically the same." Similar results have been obtained in this city.

But admitting that, notwithstanding all that has been adduced in favour of the opinion that the black vomit consists in altered blood, doubts on the subject may still be entertained, all difficulty must cease when the fluid is submitted to a chemical, and especially to a microscopical examination.

¹ Am. Journ. N. S. xiv. pp. 384, 385.

³ New Orleans Journal, ix. p. 420.

² Ibid. ix. p. 282.

⁴ Charleston Journ. viii. p. 344.

For the purpose of settling the first of these questions, the chemical composition of the fluid, and ascertaining how far its peculiar characters depended on the presence of blood, I placed in the hands of my friend, Professor Rogers, of the University of Pennsylvania, several specimens of it, for which I was indebted to the kindness of another friend, Dr. Cain, of Charleston, and subsequently other fresh portions obtained in this city during the prevalence of the epidemic of last summer. The results of this examination I here subjoin, by transcribing, with permission, a letter addressed to me by Professor Rogers:—

PHILADELPHIA, Sept. 12, 1853.

MY DEAR DOCTOR: The four specimens of black vomit which you handed me last autumn for examination, gave the following results:—

They came, you remember, from Charleston, and were labelled by us for reference, A, B, C, D.

Albumen was detected in all excepting A, and this was not examined for it, since it was impossible to free the liquid from the large amount of dissolved colouring matter which rendered it opaque. Sulphuric acid was present in all. Chlorine was present in all. Iron was detected in the ashes of all. Alkaline bases were found in the ashes of all. Lime was detected in all. Hydrochloric acid in the free state. The liquids were quite dilute, as their specific gravities, here given, show. Therefore, as the quantities furnished scarcely admitted of so minute an analysis, they were not examined for phosphoric acid.

Sp. gr. of A, 1.016; B, 1.005; C, 1.004; D, 1.003.

I have just finished testing the liquid you left with me on the 9th, specimens E. and F., and have found in it the following substances:—

Albumen.

Sulphuric acid, in a state of combination.

Chlorine, " " "

Alkaline bases, " " "

Earthy phosphates.

Iron.

Hydrochloric acid in the free state.

These substances, although not the sole ingredients of blood, are yet all of them, with the exception of free hydrochloric acid, constituents of that liquid—a fact which, taken in connection with the other characters, and especially the microscopic appearance of the liquids, gives strong evidence that they contain much altered blood. Indeed, the presence of several of the substances enumerated, as albumen, iron, and sulphuric acid, seem not to admit of any other explanation, since it could scarcely be possible that in that stage of the disease they were the results of any food remaining in the stomach.

I am, very sincerely, your friend,
R. E. ROGERS.

As regards the specific gravity of the specimens examined by Professor Rogers, it varied, as will be seen, from 1.003 to 1.016. In the examinations by Dr. Michel, of Charleston, it varied from 1.010 to 1.027—water being reckoned as 1.000. When kept until decomposition began, and bubbles of air and gases were produced, this changed very much, being sometimes as low as 0.986 or 0.962. The decanted liquid, without the solid parts, gave 1.000 to 1.015. A specimen examined by Professor Hume, and which was remarkably black, had a specific gravity as high as 1.032.¹

¹ *Op. cit.* Charleston Journ. viii. pp. 334, 335.

Of the composition of the white and precursory vomit, we know, as yet, little. Though some was collected on several occasions last summer, the opportunity of having it chemically examined, did not present itself. As already stated, it was strongly acid; and everything leads to the opinion expressed by Dr. John Davy, who remarks that, "judging from analogy, it will be found to be serous, or to contain albumen;—the analogy, for instance, of the discharges in cholera, in diarrhoea, and dysentery, and, I may add, in catarrh; even in common catarrh, I have found the perfectly transparent fluid which drops from the nostril, possessed of the properties of very dilute serum, exhibiting, with test papers, an alkaline reaction, and affording, on being boiled, a minute quantity of coagulated albumen."¹

The black vomit has been submitted to a microscopic examination by Dr. J. Davy,² Drs. Hayne³ and Michel,⁴ of Charleston, Dr. Riddell,⁵ of New Orleans, Dr. Alonzo Clark,⁶ of New York, Dr. Hassall,⁷ of London, and, at my request, by Dr. Leidy, of this city, and the result of their experiments goes to prove beyond doubt the correctness of the views here contended for as to the nature of the fluid. Dr. Davy says that, "under the microscope, black vomit has appeared to be very heterogeneous, exhibiting small irregular plates, not unlike epithelium plates; numerous particles, not unlike blood-corpuscles, altered by the action of water; and some larger and grayish clustered particles." Dr. Hayne describes the fluid as containing blood-corpuscles in the greatest abundance, floating in a dark fluid. They were, however, considerably altered in form, being, as it were, considerably flattened and elongated. There were also epithelium scales. Dr. Michel, in his first publication on the subject, in 1849, states that he found it to consist of blood with vitiated corpuscles, and of epithelial scales, the whole floating in the serum. In his second essay, which appeared in May, 1853, the same intelligent and reliable writer says:—

"Had the smallest particle of this black liquid been conveyed to the stage of the microscope years ago, when the whole country disputed its character, speculating and theorizing ingenuously about it, it would have been found to be nothing more nor less than blood, mucus, and epithelia, disturbed by the action of some reagent, and in forms as tangible, if I may so speak, to the compressorium and other instruments in ordinary use, as these organic products are in any other condition. The coffee-ground sediment presented every resemblance to coagulated blood, appearing as so many dense opaque masses, tinged darkly with hematite. Small portions, rendered less opaque by proper manipulations, were found to consist of shreds or beds of mucus, entangling numerous scales, granules, and some disks; and as they floated over the field of vision, the tenacity with which the flocculi of black vomit preserve their colour and form, seemed easily explained, the blood being so inclosed among

¹ Blair on Yellow Fever (Appendix), pp. 158, 159.

² Notes on Blair, p. 81.

³ Charleston Journ. viii. p. 345.

⁴ Charleston Journ. v. pp. 748, 749.

⁵ N. O. Journ. ix. p. 420.

⁶ New York Med. Times, ii. p. 230.

⁷ Lond. Lancet, April, 1853, Am. ed. p. 325.

the epithelial cells and mucus as not to be easily dissolved, or its fibrin washed white, even in samples kept for a length of time."

Of these epithelial cells, which are very numerous, Dr. M. detected all the varieties, except the ciliated.

But "blood in a broken-down and altered condition, is met with invariably in abundance; indeed, it is this which constitutes black vomit *par excellence*. Every object under the microscope is intensely coloured by it, as a large proportion of hematine appears to be in complete dissolution. It need hardly be remarked, that the blood-corpuscles are entirely separated from each other, and never seen in rolls or piles, and are equally changed in their physical nature. We see no disks, or but few, turning edgewise while in motion. The vast majority are entirely dissolved, a granular detritus being all that remains even in the freshest condition. Some again are spheroidal, distended, or otherwise misshapen, most generally corrugated, measuring 1.3000 of an inch, undergoing exactly the same modifications as we produce at will by treating them with acetic, nitric, hydrochloric acids, or concentrated saline solutions."

The microscope of Dr. Riddell showed the black vomit to be blood, having the appearance of being materially modified by acid. Most of the blood-corpuscles seemed to have been disintegrated, broken down into small granules and irregular masses. Clots generally abounded containing whole corpuscles, generally spherical and smaller than the normal size, from 000.20 inch diameter to 000.30, the usual measurement being 000.25. In one case, the corpuscles presented nearly their usual appearance, measuring from 000.25 to 000.33.

"After the microscopic clots of disintegrated and modified blood, the next most prominent feature in black vomit is the abundant occurrence of groups of large, connected, beautifully-developed cells; modified epithelial cells of the stomach, abnormally developed. These vary in diameter from .00050 inch to .00200. In shape, they are spheroid, ovoid, oblong-ovoid, or polyhedral, usually nucleated; nucleus .00012 to .00040 in diameter. These cells are filled with granules, measuring .00002 to .00004 inch."

Dr. Clark found, with a magnifying power of 400 diameters, a large amount of the epithelial lining of the stomach and its crypts (some cells of which were granular and breaking up; some in a normal state; some were separated, floating free; others were united in sheets of limited extent), and a fine granular matter, which was probably the disintegration of epithelial cells. In another specimen, the sediment contained, like the other, the epithelium of the stomach and its crypts. These bodies were seen sometimes in sheets of moderate extent; sometimes as individual cells. Many of them were granules, and a few of the larger flat cells contained oil-globules. The fine granular matter, so abundant in the first specimen, was seen also in this, but in smaller quantity, and probably should be referred to the same source, the disintegration of some of the cells. Of substances that did not belong to the stomach tissues, Dr. Clark notices: 1. What he is compelled to regard as blood-corpuscles.

"These were of a uniform dark yellowish-brown colour, and existed in great abundance, constituting from one-sixth to one-quarter of the mass. Their forms varied from the disk-shape to the globular. Some were isolated, but more were grouped. Some were no more than a third the size of the largest. Some were in the process of disintegration, and formed nebular spots of considerable size, mostly granular; yet in the midst of the granules were small granular and large disk-shaped bodies. But all had the same dark brown colour, and it was easy to trace a regular gradation from the unquestionable disk-shaped blood-corpuscle, through the larger and smaller globular bodies to the granular bodies."

2. Numerous scales of opaque black matter, having no uniform shape, and susceptible of fracture in any direction. This substance Dr. C. regards as the product of some chemical change in the colouring element of the blood. It was abundant in both specimens examined, in one of which it constituted at least one-twelfth of the whole bulk of the sediment.¹

3. A large quantity of a peculiar crystalline matter, sometimes in the form of a brush, but oftener flattened, as if spread by the weight of the glass cover, white in colour and nearly transparent. 4. A vegetable growth in linear, or rather, stout joints, the sections commonly separated, but often united as by a hinge. This element was in great abundance in one specimen, but not seen in the other. It disappeared entirely after the lapse of three weeks, leaving only the substances described above.

Dr. Hassall, among other elements, found "vast numbers of irregular bodies, frequently of a brown colour and resembling somewhat blood-disks, shrivelled and discoloured. Multitudes of molecules and amorphous masses of a brownish or blackish colour." Dr. H., it is true, doubts the propriety of regarding the irregular bodies above mentioned, "which formed the most abundant and peculiar element of the fluid, and upon which its colour to some extent depended, as altered blood-disks, on the ground that they are insoluble in strong acetic acid; and is inclined to the opinion that they are the sporules of a fungus. But the latter supposition is purely hypothetical; while the objection must fall to the ground, inasmuch as acetic acid does not completely dissolve blood-corpuscle. It deprives them, as Dr. Clark remarks, of their colouring matter, and reduces their refractive power so nearly to that of the fluid in which they float, that a good lens and close examination are required to see them, but they do not entirely disappear. Besides, it is found that, if fresh blood-corpuscles are first macerated in dilute hydrochloric

¹ This pigment matter is often met with in other pathological states of the system. It abounds in the "bronze liver" of remittent fever. It is occasionally seen in the urine; and it is frequently easy to trace gradations in its colour from the dark brown of the corpuscles above described, to the jet black which usually distinguishes it. I am not aware that it has received a name, unless it should be considered a modification of *melanine* or *melanose*.

To these two constituents must be ascribed the peculiar colour in both these specimens. And I cannot doubt that they are alike the result of sanguineous effusion from the lining membrane of the stomach.—*Clark.*

acid, they become insoluble in acetic acid, and the disk-shaped bodies discovered in the black vomit have been acted upon by the former acid, we have a ready explanation of their being no longer soluble in the latter, which, as we have seen, is invariably found in that fluid.¹

Portions of the specimens of black vomit, which, as already stated, I obtained through the courtesy of my valued friend, Dr. Cain, of Charleston, were placed by me for microscopical examination in the hands of Dr. now Professor Leidy, whose accuracy in matters of the kind is well known throughout the vast expanse of this country, and of the scientific world abroad. The accompanying figures, 1 to 6 of Plate I., represent the results of his examinations.

The sediment of specimen A (Fig. 1) consisted of: 1. Numerous transparent circular or tabular crystals, which were simple or arranged in radiating groups. Isolated, they measure from the one 3000th to the one 300th of an inch. 2. Isolated brownish granules. 3. Groups of brown granules from the one 3000th to the one 1000th of an inch. These were apparently the result of degradation of blood-corpuscles. 4. A few unchanged blood-corpuscles.

Specimen B (Fig. 2) contained in its sediment: 1. Numerous groups of brown granules from the one 3000th to the one 600th of an inch in diameter. In these groups could be observed blood-corpuscles in all stages of degradation; from such as were slightly changed to dark granules not more than the one 14,000th of an inch. 2. Numerous very minute crystalline bodies. 3. Debris of epithelial cells. 4. Unchanged blood-corpuscles, few in number. 5. A few groups of blood-corpuscles.

Specimen C (Fig. 3) contained numerous brown granules from the one 14,000th of an inch to the size of a blood-corpuscle, and appearing to be blood-corpuscles in various stages of degradation. Most of the granules were isolated; but a few were arranged into groups.

Specimen D (Fig. 4), which was the freshest, contained some perfect epithelial cells and a few fragments of the same; but consisted in great measure of decomposed blood. This latter consisted of blood-corpuscles from which the colouring matter appeared to be entirely exosmosed, but which still retained their outline form; and of fine brown granular matter, the result of the conversion of the exosmosed colouring matter of the corpuscles, or hematine with hematoidine. The accompanying drawing, which exhibits the discolored blood-corpuscles and the hematoidine granules, is on a larger scale than the others.

Specimens of the fresh fluid derived from individuals who died of the yellow fever in this city during the preceding summer and autumn, were examined by Dr. Leidy, and always with the same results, so far as regards the presence of a large amount of disintegrated blood-corpuscles.

Specimens E and F (Figs. 5 and 6), represent the results obtained in two of those examinations. In the first (E), we have blood-corpuscles of a light-

¹ Clark, pp. 233, 234.

brown hue and granular hematine. In the second (F), we have the same materials, with the addition of some oil globules and a yeast fungus. Both specimens contained epithelia, but these are not represented, because, as Dr. Leidy remarks, they are a normal constituent of the gastric liquids.

From all that precedes, we cannot but perceive the impossibility of denying that the sedimentary portion of the black vomit is composed almost entirely of blood-corpuscles in various stages of degradation. These altered corpuscles have been found to constitute the main element in the composition of that substance by the writers mentioned, as well as by Dr. T. Hewson Bache, Dr. J. E. Rhods, Dr. J. Darragh, Resident Physicians of the Pennsylvania Hospital, Dr. J. F. Green, of the city, and indeed by all who have submitted the fluid to a microscopic examination.

The next most prominent feature in the black vomit is, the presence of epithelial cells. These vary in respect to their abundance, size, and shape, and while stated by some to have presented themselves in all the specimens examined, they have, in some instances, been found wanting. Of the six specimens reported upon by Dr. Leidy, two were deficient in this particular. The size and shape of these cells, as observed by Dr. Riddell, have already been referred to. In the hands of Dr. Michel, the *scaly*, *columnar*, and *spheroidal*, have, at different times, been plainly made out with their nuclei and nucleoli, but in very different proportions—the scaly or lamellar cells being always most numerous.

"Many of these latter," Dr. Michel states, "are seen as perfect in shape as when artificially removed from the mucous surfaces of the throat, gullet, or mouth, and frequently united by an adhesive intercellular matter in the order of the hexagons of a tessellated pavement, some presenting at their centres accurately defined nuclei, which the addition of a little diluted acetic acid rendered even more apparent. These are evidently shed from the mucous lining of the oesophagus, pharynx, back part of the fauces, and mouth during the act of vomiting." "But if carefully examined, there is no sample which will not disclose the presence of the columnar epithelium of the gastric membrane."

These varieties of cells are represented in Plate I. Figs. 7 and 8, which I borrow, with permission, from Dr. M.'s essay.

The existence of these cells in the black vomit cannot be matter of astonishment, inasmuch as every physiologist knows that the fate of the epithelium is very different from that of other parts; for while the old elements in other cases are reconveyed into the blood, those of the epithelium are shed on the free surface of the mucous membrane, and thus become at once eliminated from the system. Hence, they are detached and more easily shed, doubtless, in the disease in question in consequence of the morbid state of the stomach, and its abrasion from the acridity of the black vomit, during the act of vomiting. Dr. Riddell remarks, that upon the inner coat of pieces of stomach, which, before the death of their owners, had cast off black vomit, he found myriads of these cells developed, and traversed by most delicate capillary bloodvessels, which, by a little aid of the imagination, appeared to be newly formed." If

this be so—if, as Dr. Riddell states, epithelial cells are abnormally developed in the yellow fever; if they become filled with blood, the latter pushing forward into them, as in embryonic development, forming capillaries—and, if in consequence of their extreme tenuity and want of strength, they rupture—thereby giving passage to their contents into the cavity of the stomach; and if “this great development of delicate cells upon the mucous coat of the stomach” turns out to be “a most important link in the chain of causation, which ends in black vomit,” we shall have been furnished with facts or suggestions not before mentioned, and for which that able experimenter should be duly credited.

The black liquid matter formed in the upper part of the intestinal canal, as well as the coffee-ground fluid discovered in other portions of the latter, have much the same appearance under the microscope as that which proceeds from the stomach. Somewhat different is the result obtained in the examination of the dark or black pasty and tar-like matter discharged from the bowels, and found, and doubtless formed, in the lower portion of the canal. Of this, the microscopic character bears but a slight resemblance to that of the gastric effusion. It is found to consist of a muco-granular substance, containing a multiplicity of lacerated cells, but no blood-corpuscles. Dr. Michel states, that the dark-bluish mucous colour of this substance is hardly obscured by any hematine. True, however, as this may be, we can find no reason to doubt the identity or close connection of this fluid with the true black vomit, or to withhold our belief from the fact that the difference arises from the circumstance that, in cases in which the matter ejected per anum assumes the appearance in question, the blood has undergone a kind of digestion in its passage through the intestines.¹ (See Plate I. Fig. 9.)

Dr. Samuel Jackson, in his account of the epidemic of yellow fever which prevailed in this city in 1820, remarks that Dr. Rhées, the resident physician at the City or Fever Hospital, in some experiments he instituted on the black vomit with a solar microscope, found innumerable quantities of animalculæ to exist in it. A single drop contained many thousands, being apparently a congeries of them. The black mucus of the intestines exhibited the same phenomenon. When the matter fresh thrown from the stomach was examined, the animalculæ were alive, and in constant motion; but if taken from the dead subject, or inspected after standing some time, they were always dead and quiescent.²

Others have made analogous statements, and very recently Dr. Manley, in a short communication to the *London Lancet*, remarks, that his attention was first called to the subject by a paragraph in *Wood's Practice*; and that, during the prevalence of the yellow fever in Pernambuco, in 1852, he verified the fact in several instances—the animalculæ being acari (species unknown).³

¹ Michel, *loc. cit.* p. 338.

² An account of the Yellow or Malignant Fever as it occurred in the City of Philadelphia in 1820, p. 81. *Ib.* in Philad. Journ. of Med. and Physical Sciences, ii. p. 23.

³ London Lancet, Am. ed. Feb. 1853, p. 192.

Nothing of the kind, however, has been found in the experiments of Dr. Clark, Dr. Leidy, and Dr. Hassall. Dr. Michel, in a short essay on the black vomit, published in the fifth volume of the *Charleston Medical Journal*, stated that the fluid never presented infusoria when fresh, but that these were developed whenever small quantities were allowed to remain in the room. (p. 748.) Subsequent examinations, however, made on a larger scale, have not confirmed this statement; for Dr. M. now informs us that, in recent samples of the ejecta, he never detected spontaneous evolutions of the kind.

"On this subject," he says, "I have experimented with care; and if by *animalculæ* we are to understand the initiatory forms of *animal* cell life, as they are recognized in the familiar varieties of Polygastrica and Rotifera, I say, without hesitancy, that such were never to be seen, either in fresh or putrescent specimens of the vomit. Dr. Rhee's experiments were made with the solar microscope, an instrument certainly not adapted for such investigations as these." "If infusoria were present, we could hardly fail to encounter them, for whoever has watched the development of the simple monad, is aware that they are propagated with such magical rapidity, that when one is discovered, countless numbers are soon found to follow in its suite."

In the experiments of Dr. Riddell, minute filiform algae were uniformly present, varying from .00001 to .00003 in thickness. Several jointed forms of moving algae were equally constant, though mostly very small. Vital organizations still more minute, were constantly met with. In one sample of black vomit, an unusually trifling form of that rather rare parasitic organism, the Sarcina, was observed. The cells or segments in that sample were arranged mostly in squares, and each separate segment, having an oval form, measured near .00003. p. 421. Other investigators have found nothing of the kind. Nor is this to be wondered at; for, as has been remarked by both Dr. Hassall and Dr. Michel, the black vomit, from its intense acidity, is not favourable to the development of algae, which are not likely ever to be present, except as the result of decomposition. From the same cause—the acidity of the fluid—and from the circumstance of the latter being an organic product, we must be better prepared to find it containing fungi of various kinds. Hence, these products—especially the Torula—have often been described as present. A small variety of the concentrated form of them was discovered, with one or two exceptions, in every sample examined by Dr. Riddell. They were generally very abundant. The individual buds were oval, averaging .00018 in length by .00012 inch in breadth. In Plate II. Figs. 11, 13, 14, 15, will be found figures of the algae and fungi observed and described by Dr. Riddell. The examinations of the putrescent fluid afforded Dr. Michel an opportunity of witnessing the development and mode of growth of a fungus Protophyte very much resembling the *Torula cerevisii*, if it be not identical; the only difference being the constant absence of nuclear cells at all periods of its development and growth. Dr. Hassall detected: 1. Ramose branches of the sporules of a fungus; 2. Large circular sporules, usually single, but sometimes ranged in rows, and giving origin to slender threads or

filaments; 3. Branched and moniliform threads of a fungus usually occurring in bunches; 4. Many compound cells, having the appearance of sporangia. (See Plate II. Fig. 16.) Dr. Clark, on the other hand, found in one of the specimens he examined, a vegetable growth in linear or rather stint joints (Plate II. Fig. 10), the sections commonly separated, but often united as by a hinge. It was in great abundance, but disappeared entirely after the lapse of three weeks. The same was found by Dr. Riddell (Fig. 12).

It thus appears that different fungi are evolved under particular circumstances, for each of the investigators referred to has seen different growths; while in many instances they fail entirely to be observed. From this we conclude that, when these bodies are found, they are accidental, and may not improbably be referred to particular substances administered as food or medicine, and that consequently, contrary to the opinion of Dr. Hassall, they have no relation to the cause of the vomiting.

But be this as it may, the inquirer who bears in mind what has been said respecting the microscopical characters of the true black vomit, backed by all the corroborative facts and circumstances before adduced; and who, at the same time, takes into consideration the close analogy existing between the fluid ejected from the stomach and other parts, and that artificially made by the means mentioned—a representation of which, as given by Dr. Michel, will be found in Plate II. Fig. 17—will, unless labouring under the incubus of some preconceived and favourite theory, feel little disposition to deny or doubt the sanguineous nature of the substance in question. It is altered blood mixed with inspissated viscid mucus and other gastro-intestinal secretions; themselves modified by a larger or smaller portion of hydrochloric acid.

The next question which presents itself is, how and where does the blood thus effused undergo those changes which impart to it the characteristics of the black vomit?

It has been supposed that the blood thus discharged in the cavity of the stomach has coagulated there, or on the surface over which it was effused, “and, having been detached and triturated by the violent and frequent contractions of that organ in the efforts to vomit, has had its appearance as a coagulum of blood altered, and its colour darkened by the gastric juice, or by some chemical decomposition, either spontaneous or produced by the action of the air, or other matters contained in the stomach.”¹ Others have attributed the effect to the blood’s being brought under the digestive power of the stomach.² That this opinion receives support from the facts mentioned of blood ejected from the stomach assuming subsequently the character of black vomit, and of coagula being found in that cavity presenting only exteriorly these characters, may perhaps be true. But it is opposed by facts and circumstances entitled to consideration. The stomach, at the period when black

¹ Bancroft on Yellow Fever, p. 28.

² Audouard, Recueil, Introd. p. 1; Rochoux, *op. cit.* p. 533.

vomit is ejected, is not usually in a condition to carry on the digestive process; while in hematemesis, where the organ is comparatively healthy, or at least has not undergone changes calculated greatly to impair its digestive functions, the blood, though dark in colour, rarely assumes the coffee-ground appearance, and other characteristics of true black vomit. Furthermore, in yellow fever, the matter seldom remains long enough in the stomach or bowels, or on the surface of the membranes, from the capillaries of which it is effused to be changed by the digestive process, supposing this to be less impaired than we know it to be, and to undergo much of the trituration referred to by Dr. Bancroft. We can sometimes, as Dr. Evans remarks, distinguish this organ becoming more and more distended under our fingers as the matter accumulates, which it does in about ten minutes, and sometimes in a shorter period; and when filled the vomiting is renewed.¹ In addition to this, it may be urged that the matter of the black vomit oozes, at times, from surfaces where it can have undergone, or can undergo, no digestive influence, or no trituration; and has, as stated above, been detected in the engorged capillaries of the stomach and intestines, where of course it could, by no possible means, have been formed by the process contended for.

More natural is it to conclude, with many modern writers,² that the blood acquires generally, if not always, in the stomach and intestines—or in whichever part the phenomenon is observed—its peculiar and characteristic features; and that, when it does so, the effect, as may be inferred from the almost universally acid nature of the vomit, and the well-ascertained conversion of blood into a substance perfectly identical with that fluid by the addition of the acids, is doubtless due to its meeting there with a large portion of free hydrochloric acid, the morbid product of the disease.

Dr. Carswell claims the credit of being the first to suggest or prove the correctness of this opinion.

"The fact of the black discoloration of the blood effused into the cavity of the stomach and intestines being produced by the chemical action of an acid fluid or gas contained in those situations, does not appear to us to have been ever suspected till after the result of our experiments on this subject were made known." "The matter of black vomit and dejections was *believed* to be *altered* in the stomach and intestines; but whether by a chemical or vital agent was quite undetermined."³

In relation to this matter, it may once more be remarked that Dr. Cathrall, more than half a century ago, was fully aware that, by the action of an acid, blood was changed in its characters, and converted into a substance resem-

¹ A Clinical Treatise, &c. p. 249.

² Nott, p. 281; Am. Journ. ix.; Blair, p. 81; Wood, i. p. 301; Lyon, *loc. cit.*; Riddell, *loc. cit.*; Hunt, quoted by Dr. Riddell; Stevens, 288, 330; Michel, *op. cit.* 343, 344; Carswell, Cyclop. iii. p. 102; Pym, *op. cit.* 222; Harrison, N. O. Journ. ii. p. 147.

³ Cyclop. iii. p. 102.

bling in every particular the genuine black vomit. Before him, Portal, in speaking of the appearance of blood effused into the cavity of the stomach, remarked that doubtless it there "assumes a dark colour; because, not being then in contact with oxygen gas, it becomes carbonized by combining with the carbonic acid which exists in the stomach and intestines."¹

Dr. Samuel Brown, of Boston, in his account of the epidemic which prevailed in that city in 1799, in speaking of the septic acid, which, according to Dr. S. L. Mitchell's theory, constitutes the cause of the disease, and is formed in the *prima vix*, as well as derived from external sources of organic decomposition, says: "The coffee-coloured matter, commonly called black vomit, ejected in what are called bilious remitting fevers, seems to owe its colour to a mixture of this acid, as appears from its stimulant nature noticed by disectors, with a quantity of bile and *blood*, which is poured out of such vessels as have their coats destroyed by this poison."² Dr. Lyons, as already stated, published in 1828 the opinion, based on experiment, that black vomit was blood changed from its normal state by the action of muriatic or gastric acid; and Pym, whose volume on the Bulam fever appeared in 1814, states positively that black vomit is blood modified by an acid. The account of Dr. Carswell's experiments appeared in 1830.

The propriety of this view of the mode of formation of the black vomit is farther illustrated by phenomena observed in other diseases, in not a few of which the changes in the blood, which approximate it in a greater or less degree to the fluid in question, are evidently due to the action of the acid secretions with which it comes in contact, or is mixed. The dark colour of the blood in hematemesis, which at times contrasts so strikingly with the florid blood of hemoptysis, has usually been ascribed to the circumstance that while the latter is of arterial origin, the former proceeds from the venous capillaries. With much show of reason it has been suggested that the difference depends on the circumstance of the admixture of the blood on the one hand, with oxygen in the lungs; on the other, with the hydrochloric acid of the gastric secretions. The probability of the fluid and gaseous contents of the alimentary canal acting on the blood after it is poured out, and depriving it of its bright colour, was strongly insisted upon by Portal (see the celebrated work just quoted), who disbelieved, as Areteus had done long before him, the venous origin of hematemesis; an opinion in which that very distinguished writer has been followed by several pathologists, and among these by our countrymen Drs. Condie, Nott, and Michel. If the comparatively small proportion of the acid existing in that disease can darken the blood to the extent often noticed, we can readily conceive how a much larger portion of it, acting on blood already impure, can impart to it the characters of black vomit.

¹ Cours d'Anatomie Médicale, v. p. 188; *Ib.* Obs. sur la Nature et le Traitement du Méléna—Mém. sur plusieurs Maladies, ii. p. 209.

² A Treatise on the Nature, Origin, and Progress of the Yel. Fev. &c. p. 46, 1800.

Attention has been called, in an early part of the present essay, to the fact that a fluid in every respect resembling the black vomit, is sometimes ejected in dyspepsia and during pregnancy; and every one knows that, in such conditions of the system, the predominance of acid in the stomach is a very usual phenomenon; and on inquiry it will be found that, in those cases in which the effusion of this black substance took place, the acid formation was particularly noticeable. Dr. Michel reminds us, that this again is seen in certain instances of renal affections; the blood becoming ultimately mixed with the acid mucus of the bladder. The same writer, with great correctness, remarks that blood is frequently seen to be red while it oozes from the surface of the uterus, but becomes dark so soon as it combines with the vaginal secretions, which are decidedly acid.

In some of the varieties of what Dr. Carswell has denominated the spurious melanosis, the discoloration of the blood is satisfactorily shown to be the result of the action of chemical agents, the change taking place, as we have seen, in the vessels or cavity of the stomach, and in the cavity or vessels of the peritoncum.¹ Here, the modifying influence of gastric or hydrochloric acid is too apparent to be denied.

Doubtless we may explain in the same way the occurrence of the discharge of blood similarly altered from other surfaces. The acid character of the sensible and insensible perspiration, under particular circumstances, is well known; and that the skin secretes at times hydrochloric acid, was several years ago ascertained by Dr. William Lyon, of Dominica, whose observations were made on recruits arriving in the colony.² With this in view, we can readily account for the black and grumous appearance which the blood effused from the denuded cuticle, in some cases of yellow fever, has been found to assume. May not something of the kind take place in the serous membrane, also, from the formation of acid in that tissue, or through the effect of endosmosis during life, or of imbibition after death? On this subject, we are not left to conjecture. Dr. Carswell, so often referred to, who has adopted and strongly advocated this opinion, and whose experiments on the discolouration of the blood and the dissolution of the walls of the stomach by the action of gastric acid are well known, found that the influence of that acid in producing the first of these effects, is not limited to the contents of the alimentary tube. Not only, he says, is the blood that has been poured into the cavity of the stomach, or is contained in the vessels of the mucous or submucous tissues changed from red to brown or black, but likewise that of the sub-peritoneal vessels of the same organ is similarly altered. Dr. C. has also seen the same black discolouration of the blood in the sub-peritoneal vessels of a neighbouring organ, such as the liver, spleen, intestines, or diaphragm in contact with that portion of the stomach which contained half-digested food or

¹ Cyclop. iii. p. 99.

² Observations on Black Vomit, Lond. Med. Phys. Journ. (N. S.) iv. p. 100.

gastric acid. It is not difficult to understand that blood effused into the cavity of the peritoneum will undergo the same change of colour as that which takes place in the fluid contained in the vessels. Dr. C. produced effusion of blood into the cavity of the peritoneum around the stomach in several animals, and was thus enabled to witness its conversion from red to brown or the deepest black. He took a portion of stomach containing gastric juice, placed it on a coagulum of blood, or kept it in close contact with a portion of intestines on which there was a greater or less number of vessels filled with red blood. In both cases the blood assumed a brown or black colour, no doubt from the acid having been carried from the interior of the stomach by imbibition.¹

But be this as it may, the formation by the gastro-enteritic mucous surface, in the progress of yellow fever, of an acid fluid of sufficient strength, and in sufficient quantity to affect the blood in the way which the same kind of agents do in the hands of the chemist, cannot be matter of astonishment. We know that such a fluid is always found in the stomach during the digestive process in the state of health. Dr. Prout, so early as 1823, announced as the result of his experiments, that such was the fact; and he found that this acid was free, or at least unsaturated, muriatic, or hydrochloric acid. Bernard, Thompson, and others, have thought that this acid was the phosphoric; by others it has been regarded as the lactic. But it may be safely said, that subsequent experience has confirmed the opinion expressed by Dr. Prout, as to the existence of the hydrochloric acid, the proceeds of the chloride of sodium of the blood, which, while it contributes that acid, at the mucous membrane of the stomach, to the gastric fluid, leaves free soda to be carried to the liver by the veins of the stomach. In fevers, acid is preternaturally formed. Dr. Stevens (322), in speaking of a case of malignant lake fever, which he saw in 1830 at Rochester, N. Y., in company with Dr. Henry, a distinguished physician of that place, says:—

“The stomach was so excessively tender that the patient could scarcely allow even the slightest pressure to be made on the epigastrium. The tongue was exceedingly foul, and when I applied a small piece of moist litmus paper to this organ, the test was reddened almost as suddenly as if it had been dipped into a strong acid. The same thing occurred when litmus paper was dipped in the fluid ejected from the stomach.”

A similar change takes place, even more uniformly, in the yellow fever. It does so long before the appearance of black vomit; and we have seen that the whiteropy fluid frequently ejected at the close of the second stage is usually intensely acid. Can we, when bearing these facts in mind, and recollecting the effect of acids on the blood *out of* the body, fail to discover a ready explanation of the formation of black vomit?

But it is not less possible that the change may take place, not in all cases,

¹ *Op. cit.* iii. p. 100.

as some writers have affirmed,¹ but in some, before the blood has been effused into the cavity of the organs, and consequently in the capillary vessels. Its discovery in these, as mentioned in a former page; its frequent and quick renewal; its effusion in an apparently formed state from external and visible surfaces, undoubtedly lend some support to the belief. But if such is the case, if the vessels through which the black vomit exudes, really modify the blood in its transit to the surface, and, in that sense, may be said to secrete the former—for the idea of a regurgitation, once entertained by or attributed to some of our physicians,² can scarcely be seriously thought of—they cannot, from all we have seen, be admitted to do so otherwise than through the agency of an acid, which must reach the blood by the process of endosmosis. Whether this suggestion will be ever confirmed; whether the acid being in the stomach and intestines finds its way into the bloodvessels which subsequently throw it off in its formed state; or again: whether the acid is formed in the very capillaries which contain the blood modified, as some have suggested, remains to be verified; for, so far the opinion is mainly conjectural. In the meanwhile we cannot go astray, if, with able pathologists and accurate experimentalists, we regard this change, when it takes place in the capillaries, as the effect of a cadaveric alteration. We have seen that, in the experiments of Dr. Carswell, a peculiar change in the colour of the blood contained in the gastric vessels is observed to accompany the dissolution of the coats of the stomach, and that this is not less obviously the effect of the same cause—the agency of the gastric acid. We have seen that, in some experiments, when the digested acid food, or the gastric acid alone, is removed from the stomach in which it was formed, and put into another stomach, or other organs, the vessels of which are conspicuous and filled with blood, the fluid very soon undergoes the same change of colour noticed when the chemical agent is placed in contact with it; and also that the same effect is produced in the peritoneum when a portion of the stomach, containing gastric juice, is kept in close contact with a portion of the intestine in which there was a greater or less number of vessels filled with red blood. In all these cases, the dark colour of the blood could not have been produced otherwise than by the passage to it of an acid by means of cadaveric imbibition. In corroboration of this, it may again be stated that, in the experiments of Dr. Carswell, the discolouration of the blood did not occur when there was no softening or chemical dissolution of the coats of the stomach; that the discolouration of the blood was observed only in the vessels distributed over or situated near the parts of the stomach which were softened; and that both changes were, *cæteris paribus*, nearly in the same ratio as to degree and extent.³ It need scarcely be remarked that this kind of softening is cadaveric. To this, let it be added that, in the autopsies made by Dr. Michel in 1849, the bodies were

¹ Waring, Fever of Savannah in 1820, p. 52. Kelly, *op. cit.* 385.

² Stevens on the Blood, p. 330.

³ *Op. cit.* p. 100.

opened immediately after death, while yet warm, and that this able physiologist never noticed the slightest trace of black matter in the vessels. The change, therefore, when it takes place, must do so after the acid mixed with the blood in the stomach has remained some time in contact with the lining membrane of the organ, and is the more readily produced because the absence by exfoliation of the epithelial covering, and the softening of the membrane, which so generally occur, increase the facility of the passage of the acid through the coats of the delicate capillaries.

The peculiar characters, and particularly the dark hue of the black vomit, may, and probably does, as well as its manifest disposition to exude from the capillary vessels, depend, in some measure, on the diseased condition of the blood prior to its mixture with the acid fluids of the stomach, or to its undergoing, while in the circulation, the modifying action of such acids. That this is the case, has been surmised by competent authorities,¹ and may be inferred from the fact that, at the period when the black vomit usually sets in, the blood is, in most cases, of a dark colour, and has lost a large share of its adhesive and coagulable properties; and that clinical experience and physiological experiments have shown that, when in that diseased condition, either from the agency of ordinary and powerful morbid and acrid poisons, or from the artificial introduction into the circulation of putrid substances, the blood manifests an equal disposition to exude from the same parts, and exhibits often many of the peculiar characteristics of the black vomit. Well founded, however, as this explanation may appear, it cannot be concealed that it is not applicable to all cases; for we not unusually find genuine black vomit occurring contemporaneously with effusion of florid and coagulable blood from the nostril or other parts;² a circumstance it would be impossible to account for, were an alteration of the circulating fluid essentially requisite to enable the latter to furnish materials towards the formation of the black vomit, and to impart to that fluid the disposition to escape from the capillaries. But such cases are comparatively rare. Most generally, black vomit is associated with altered blood, and the occurrence of the aforementioned cases will be found to be due to the early formation of acid fluid in the stomach or bowels, and the consequent transformation in those organs or their capillaries of the blood therein contained into genuine black vomit, while the rest of the circulation remains unimpaired, or nearly so.

It has been supposed that the discharge of the black vomit from the stomach, like that of the same matter, and of ordinary blood from other outlets in the yellow fever, is always the result of a morbid process of an active kind; in other words, that it is an active, not a passive hemorrhage.³ And there is little doubt that this view of the subject receives support from the

¹ Imray, p. 91; Evans, p. 249; Blair, p. 81; Levacher, pp. 82, 83; Pringle, 197; Hunter, p. 64.

² Blair, p. 81.

³ Catal, p. 11.

fact, that the effusion of the fluid is often preceded by an inflammatory irritation of the surface whence it proceeds, or by a greater or less inflammatory excitement of the system at large, both of which appear incompatible with the existence of an atonic state of the capillaries. Nor is it less certain, that a fluid exactly resembling the black vomit is, as we have seen, formed in cases of poisoning or external injuries, under the direct influence of active inflammation; and that, in some of these cases, recovery occurs, convalescence is rapid, and the patient is restored to health without having had recourse to tonics and stimulants, or any means calculated to correct the atony of the vessels.¹ But the occurrence of such cases only proves that the effusion of a substance like the black vomit may take place under the influence of an active state of the capillary vessels, but not that it never occurs under the influence of a contrary condition of the same vessels. With these facts before us, we cannot admit that, when in the yellow fever the black vomit occurs, the hemorrhage must be viewed as of an active kind. So far from this, the circumstances under which the discharge takes place in that disease; its connection with other symptoms, which portray an atonic state of the system; its analogy to other hemorrhages, undoubtedly of a passive kind, must lead to an opposite conclusion. The effusion of black vomit, as well as the discharge of blood from other surfaces, takes place generally at a period of the disease when the powers of the system are exhausted and all its vital energies are in abeyance, and when all irritation or inflammation, if it existed before, has subsided. In many cases, the existence of such inflammation prior to the effusion is problematical. The discharge is attended with passive exudation of a similar fluid, or altered blood, under the cuticle; it is accompanied with symptoms indicative of prostration and atony of the sanguiferous and other organic systems; it is preceded and attended by other hemorrhages, the sources of which are visible to the eye, and as regards the passive nature of which there can be no mistake; while, in some instances, the exhalation and discharge of the fluid continue after death, when all conditions of activity have, of course, subsided; and the limited number of cases that recover after the accession of the black vomit, do so generally under the influence of means calculated to restore tone to the capillaries, and to impart strength to the system at large.² From all this we may perceive the propriety of coinciding with those who regard the effusion as connected with a relaxed condition of the vessels on the surface whence it proceeds.

The black vomit being recognized to be blood acted upon by the acid contents of the stomach, we have no difficulty in perceiving that much of the difference it presents in regard to its physical appearance will depend on the manner in which the blood is effused into the stomach—whether drop by

¹ See, for such, Dr. Monges's Remarks, N. A. Med. and Surg. Journ. ii. p. 60.

² Blane, 410; Chervin, Catel. p. 11; Imray, p. 91; Harrison, p. 148; Kelly, 385; Levacher, p. 82.

drop, or in a stream—and on the degree of acidity of the gastric secretion, or the quantity of serous fluid it meets in that organ. It has been found, for example, that whenever blood is exhaled therein in a quantity proportionate to these secretions, it exhibits a black colour, while the aqueous portion is limpid, or clear green. If there be a slight excess of blood—more than enough to neutralize the acid—instead of black, we have a nut-brown, a chocolate or reddish matter, and the watery portion, when filtered, is of a rum, brandy, or red colour. If the hemorrhage be great, the fluid presents all the characteristic marks of blood, either with or without admixture of black vomit. Dr. Nott¹ has often seen a tablespoonful or two of the “coffee-grounds” at the bottom of the basin with a pint or more of pure blood. The addition of a little bile, which in some cases doubtless occurs, will impart a greenish tinge to the aqueous portion. All these varieties of colour may be, and have been imitated in the artificial black vomit. A very small quantity of blood oozing gradually in a minutely divided form, and mingling slowly with the secretions of the mucous membrane of the stomach, will make a large quantity of black vomit. Dr. Nott says that, judging from his experiments, he thinks a tablespoonful would make a pint (283).

While such is the appearance and the nature of the black matter ejected from, or found in, the stomach, the intestines give passage, as we have seen, to substances which bear a strong resemblance to the former, and are, to all intents and purposes, analogous to or identical with it. So far as the source of the black vomit is concerned, no difference of opinion at present exists. It proceeds from the lining membrane of the stomach itself, and from no other part. But in reference to the surface whence that passed per anum, or found in the intestines after death, proceeds, doubts have been entertained—some maintaining that it is the product of the intestines themselves, as well sometimes of the glandular organs under the dependence of the latter; others, that in general it has reached them through the pylorus from the stomach.² To this last source it has been more particularly referred when the discharge occurs towards the fourth day of the disease, or later; when it is voided some time after black vomiting has set in, and especially when, from the absence of symptoms indicative of inflammatory irritation or congestion, we may infer that the intestinal tube has remained unimpaired. In this opinion, however, no one who takes into consideration all the circumstances connected with, or attending, the ejection of black matter from the bowels can concur. That the black matter found in or voided from the intestines is sometimes—we may even say often—of gastric origin, there can be no reason to doubt; for whenever the matter is limited to a part of the intestines it is found only in the jenunum. But however true this may be; however reasonable or proper the admission may be regarded; and whatever may be the

¹ Am. Journ. ix. p. 282.

² Rochoux, p. 360; Louis, p. 102; Michel, *op. cit.* p. 346.

degree of reliance placed on the accuracy of the signs by which that origin may be inferred, we must not explain in that way all the cases of alvine discharges of black coffee-ground, or dark sanguineous matter which occur in that disease; for there are facts enough to show, beyond the possibility of denial, that such dejections are referable, in the greater number of cases, to morbid processes located in the intestines themselves and their dependant organs.¹ Admitting, as we are bound to do, that such evacuations consist in part of altered blood and vitiated secretions, usually mucous, with sometimes an admixture of bile; considering that some of these secretions proceed necessarily from the abdominal glands; that others are as naturally found in the intestines as in the stomach; and that there can be no reason to doubt the existence in the intestines, any more than in the stomach, of the hemorrhagic tendency so characteristic of the yellow fever, we might *à priori* conclude, that the ejections in question proceed from the former as often, at least, as from the latter organ; at any rate, that no reason exists why they should not do so. But we have stronger proofs than that. If the contents of the small intestines have an alkaline reaction; if the pancreatic juice which is poured into the duodenum is invariably of the same character; if, in these organs, no acid like the gastric is found to exist; and if, therefore, from the existence of the former chemical agents, and the absence of the latter, it may be argued that the blood cannot be modified in the way necessary to cause it to assume the character of black vomit, it may be remarked that, in lieu of gastric or hydrochloric acid, and to counterbalance the alkaline influences above noted, it encounters lactic acid in the cæcum, and sulphuretted hydrogen or carbonic acid in various portions of the tubes, all of which impart to it an acid reaction, and are thereby fully able to produce the changes in question.²

Black matter having all the ordinary characters of black vomit, has been often found in the small and large intestines in subjects whose stomachs contained none. Louis, among others, mentions two cases of the kind in which the small intestines were the seat of such an exhalation while the stomach was empty. One of these subjects never had vomited. He also mentions a case in which black matter existed in the large intestines, while the stomach was, as in the former, free from it.³ Similar instances have been described or alluded to by Dr. Lewis, of Mobile, and others. In the case just referred to, says Lewis, "there was no black vomit, so that the black matter of the large intestines may be considered in this case as the result of the exhalation of the mucous membrane of the colon; and from the facts in this and the preceding articles, it would seem to follow that the mucous membrane of the stomach, that of the small and that of the large intestines, in an undeter-

¹ Evans, p. 248; Arnold, p. 38; Nott, *loc. cit.* p. 283; Louis, p. 103; Audouard.

² Carswell on Melanosis in Cyclop. of Pract. Med. iii. p. 101; Michel, Ch. J. viii. p. 346.

³ Researches on the Yellow Fever of Gibraltar, pp. 103, 112.

mined proportion, had given rise to the brown or black matter with which they were in contact."¹ It should be borne in mind also, that clots of coagulated blood, smeared over with coffee-ground matter, are either passed from, or discovered in, the intestines. The black matter sometimes comes in form of figured stools composed entirely of it, and made into form and consistence merely by a small quantity of intestinal mucus; the whole mass being, as I have already had occasion to mention, except in colour, of the usual appearance of a child's alvine evacuation.² Nothing of the kind is found in the stomach, and as it is not likely that the effect noted could be produced by means of coffee-ground matter formed at a distance from the part where such compounds were found, or from which they had been discharged, we must view them as formed or covered with a matter effused by the intestines themselves. Nor must we forget that, if black vomit often precedes the ejection of black stools, the contrary is not unfrequently the case; the matter being evacuated from the bowels before it is ejected from the stomach, or indeed before it is *formed* in that organ, as proved by a comparison of substances voided both ways. All this proves, as Louis judiciously remarks, that the black matter does not come from one source only, but may come as well from the intestines as from the stomach. Moreover, the tar-like or coffee-ground matter has been found, after death, oozing from the vessels on the surface of the villous coat of the intestines and other abdominal organs; or it has been pressed out from congested portions of the intestinal membrane.³ Again, when black matter is voided per anum, the patient stands a better chance of recovery than when it is discharged by the stomach; a result which would scarcely obtain were it formed in the latter organ. For, were this the real place of its origin, the indications of danger would be as great when the matter is voided from the bowels, as we know it to be when it is vomited; there being no reason why danger should be lessened by the mere fact of the matter passing into the intestines instead of being expelled by the mouth. In conclusion, it may be remarked that the appearance of black coffee-ground stools towards the fourth day cannot prove the gastric source of the effusion, as it is about this period that the hemorrhagic tendency is established; and lastly, that nothing can be made out of the absence of signs of intestinal inflammation or congestion, inasmuch as the effusion is the result of a passive or relaxed condition of the vessels, and, like black vomit, is perfectly compatible with a state of integrity of the mucous membrane.

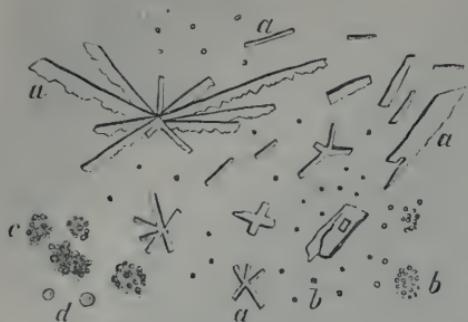
¹ *Op. cit.* p. 112.

² Dickson, *Am. Journ.* ii. p. 73.

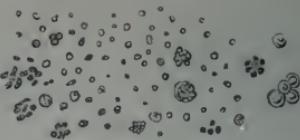
³ Arnold (of Jamaica), p. 38.

PLATE I.

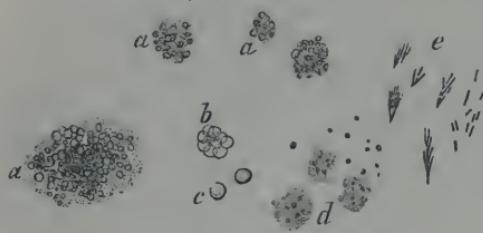
(A.) Fig. 1.



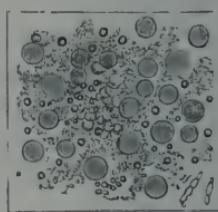
(C.) Fig. 3.



(B.) Fig. 2.



(F.) Fig. 6.



(D.) Fig. 4.

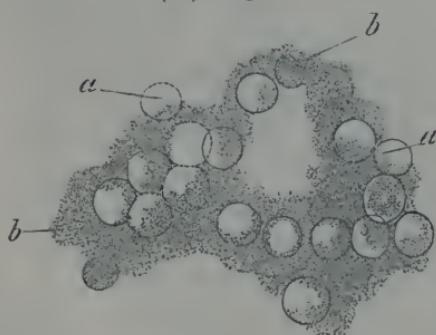


Fig. 7.

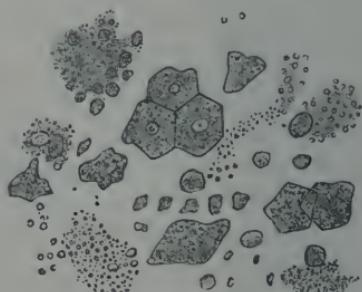


Fig. 8.

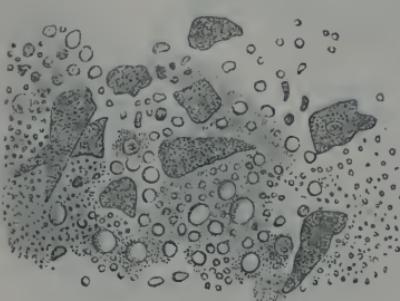


Fig. 9.

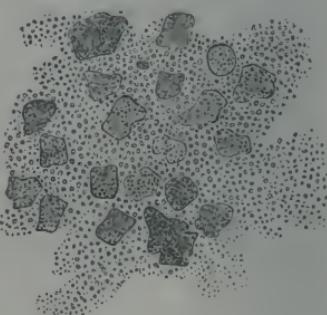


PLATE II.

Fig. 10.



Fig. 11.

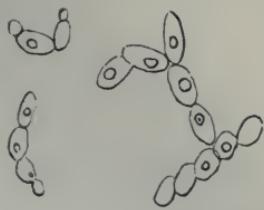


Fig. 12.

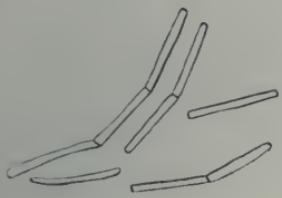


Fig. 13.



Fig. 14.

Fig. 15.

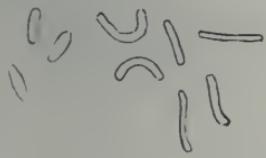
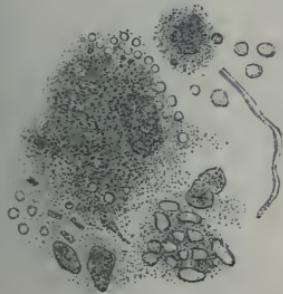


Fig. 16.



Fig. 17.



EXPLANATION OF THE PLATES.

PLATE I.

SPECIMEN A.—Fig. 1: *a.* Transparent circular or tabular crystals, simple or arranged in radiating groups. *b.* Isolated brownish granules. *c.* Groups of brown granules; degraded blood-corpuseles. *d.* Unchanged blood-corpuseles.

SPECIMEN B.—Fig. 2: *a.* Groups of brown granules; blood-corpuseles in all stages of degradation. *b.* Groups of blood-corpuseles. *c.* Unchanged blood-corpuseles. *d.* Debris of epithelial cells. *e.* Minute crystalline bodies.

SPECIMEN C.—Fig. 3: Brown granules, apparently blood-corpuseles in various stages of degradation, mostly isolated; a few in groups.

SPECIMEN D.—Fig. 4: *a.* Blood-disks, or corpuseles, which have entirely lost their colour, but preserve their form. *b.* Fine brown granular matter, produced from the colouring matter of the blood-corpuseles.

SPECIMEN E.—Fig. 5: Blood-corpuseles of a light brown hue, and granular hematine.

SPECIMEN F.—Fig. 6: Same material with a few oil-globules, and a yeast fungus.

Fig. 7: A few lamellar cells, united like the hexagons of a tessellated pavement, with their nuclei and granular contents. Below, to the right, a group of epithelial cells somewhat masked by granules and hematine.

Fig. 8: Numerous columnal epithelia; milk-globules seen in great numbers amidst deformed blood-disks and granules; the patient had taken milk and lime-water.

Fig. 9: Pasty dejections; bluish mucus from the intestines, containing numberless transparent epithelial scales; little colouring matter of the blood, and no blood-disks.

PLATE II.

Figs. 10 and 12: Vegetable growth in linear, or rather stint joints; the sections commonly separated, but often united by a hinge.

Fig. 11: Specimen of the torula.

Fig. 13: Do. do. sarcina.

Figs. 14, 15: Minuto algoid bodies.

Fig. 16.—A: Large circular sporules, usually single, sometimes in rows, and giving origin to slender threads or filaments. B. Branched and multiform threads of a fungus, usually occurring in bunches. C. Many compound cells, having the appearance of *sporangia*. D. Irregular bodies, frequently of a brown colour, and resembling somewhat blood-disks shrivelled and discoloured, but soluble in acetic acid.

Fig. 17: Artificial black vomit formed with mucus, blood expectorated from the lungs, and diluted hydrochloric acid; spheroidal cells are seen; a few blood-corpuseles unaltered, and some mucous globules. On the right side is a species of filiform algæ, and below a series of ovoid bodies of unknown nature.

ART. II.—*Account of a Malignant Fever which occurred in Brandywine Village, Delaware, in the Summer of 1853.* By LEWIS P. BUSH, M. D., of Wilmington, Del.

IN the month of July, 1853, a disease of a malignant and unusual character, and of remarkable fatality, made its appearance in Brandywine village, Delaware. The object of this communication is to exhibit the characteristics of this disease, and the circumstances under which it occurred.

The following description of the locality may contribute to a correct appreciation of the subject. The village contains about six hundred inhabitants, and is situated on the north bank of the Brandywine Creek, which separates it from Wilmington. Both sides of the stream, for a distance of about six hundred feet, are occupied by the flour-mills; and the water is deep enough, at high tide, to float the largest sloops. Both banks are bluff, and extend three-quarters of a mile east of a ship-yard which is at the eastern extremity of the village, and will be described in the course of the article. The whole length of the village is about one-third of a mile. The bed of the stream here is rocky, and is exposed at very low water; and tidewater terminates a few hundred feet above the mills. The nearest marsh-flats to the village are one-third of a mile below it, and consist of well cultivated meadows, reclaimed long since, together with one or two acres unreclaimed, over which the tide ebbs and flows.

Almost the only form of miasmatic fever which occurs along the Brandywine Creek, either near the village or on its last mile, where it is skirted by cultivated alluvium, is simple intermittent. Very rarely, either there or along the Christiana Creek—into which it empties about two miles below the village—does remittent fever occur; and a strongly marked case of bilious remittent fever is seldom seen.

The history of most of the cases below reported, was furnished to me by Dr. S. Miller, who was in attendance upon them either alone or in consultation with Drs. Askew, Porter, or myself.

CASE I.—Ezra B., blacksmith, æt. 18 years, robust, muscular, and active; had been engaged constantly at his employment in Wilmington, about one mile from his residence, which was in Brandywine, in the centre of the village, and well shaded by trees. The situation of the house was dry and elevated, and had nothing about it objectionable in a hygienic sense, except an offensive stagnant gutter in front; which, however, was common to all the houses of the neighbourhood.

On July 24, early in the morning, he went in an open boat to Newcastle, a distance of eight miles, in company with several men, for the purpose of bringing up thence the sloop James Denny, which had been lying there several weeks, and which needed repair. She was in a leaky condition, and her cabin—in which most of those on board spent one or two hours on the passage up—was unpleasant from the effluvium of the bilge-water which she

contained. E. B. complained of headache when he reached home in the evening, which he reasonably referred to exposure to the heat of the sun—to which he was unaccustomed—the mean of the thermometer on that day being $77\frac{1}{2}$ degrees.

On the three succeeding days he went to work as usual, but returned on the third, after dinner, not able to perform his duties. He complained of headache during the evening, and passed a restless night, with fever.

Thursday, 28th. Was costive, and took a dose of cathartic medicine, which operated freely. No relief of urgent symptoms following, Dr. Miller was called to see him in the evening, and gives the following report of the case:—

"I found headache, thirst, skin of moderate heat, tongue slightly coated, dry in the centre, red at point, slight tenderness at epigastrium, and some pain in the bowels—supposed from medicine.

"29th. Says he is 'first rate'; had rested better than on night previous; pulse 80; tongue moist; one stool during the night; head and bowels easy; towards noon showed symptoms of delirium; refused medicines, and resolutely persisted in going down stairs.—Evening. Delirious, moaning, turning from side to side; pulse 100, easily compressed; heat of head but little increased; feet and hands cool; slight moisture on the surface; some evidences of nausea, but no vomiting; spat some bright blood from his mouth; refused anything whatever internally.

"30th. Delirious, and very restless through the night; pulse 100; gums and fauces very red; tongue moist; bowels slightly moved; urine retained; skin dusky, cool and clammy.—8 o'clock, evening. Through the day symptoms much as above; skin now cold, dusky; head cool; pulse quite imperceptible at wrist, can barely be detected in the temporal artery; throws himself about the bed with decided force, and endeavours to get away; no evident intelligence; keeps his eyes closed tightly, pupils natural, contractile.

"Died at 4½ o'clock A. M., July 31; sick 3½ days."

Inspection, twelve hours after death.—Moderate rigidity; colour of skin dusky, as in life—not yellow; embonpoint good, no abdominal distension. On opening the cranium, found slight effusion of serum beneath the membranes, which were readily separated from the brain; bloodvessels moderately distended; small ramifications of the arteries more developed than natural; substance of brain of usual firmness, and exhibited blood-spots not very numerous, or strikingly large when cut into. Ileum and jejunum both had dark brown contents, more or less abundant at different points. Peyer's glands normal; mucous membrane yielded strips several lines in length. Stomach contained one and a half to two pints of dark brown, somewhat thick fluid; mucous membrane rather firmer and thicker than natural—gave strips three or four lines long in the larger curvature, where there was not much injection; in the smaller curvature there was more injection, and the membrane gave shorter strips. Liver of normal size; when cut into, showed the acini more distinct, and the intermediate tissue more developed than natural, giving the exposed surface the appearance of sliced rhubarb. Its hardness was remarkable, so that it could with difficulty be torn by the fingers. The gall-bladder was contracted and corrugated, containing but little bile. The bladder was found distended with urine. The contents of the stomach were microscopically examined by Dr. Bullock, who gives the following result—it will be recollect that nothing had been swallowed for two days before death, excepting a little water:—

Dr. Bullock's examination of the contents of the stomach.—"The matter presented for examination was composed of two portions, a clear fluid, and a

suspended granular matter of a deep brown, almost black colour, which precipitated in part upon standing. The fluid reddened litmus strongly. Under the microscope, the morphological elements presented were red blood-corpuscles in profusion, which had undergone but little apparent alteration, and occasional cells of cylindric epithelium; these floated in a transparent fluid.

"Besides the above, there was abundance of an amorphous granular matter of a dark brown colour, strongly resembling in appearance the bile pigment. Unfortunately, no tests were made for the purpose of ascertaining whether this granular matter was really the granular matter of the bile, or composed of disintegrated and altered blood-corpuscles.

"No other elements of importance were discoverable. W. R. B."

CASE II.—The next case which occurred was that of James II., a miller, aet. 30 years, healthy; had been engaged, August 4, A. M., in one of the Brandywine mills, in hoisting out of a sloop, and storing away a load of dusty wheat brought from Dover, Delaware; became much heated, mean of thermometer being $77\frac{1}{2}$ degrees; drank much cold water, and ate freely of apple-dumplings at dinner. Soon afterwards had pain in the stomach, and vomiting. Dr. M. saw him in the evening; found him labouring under headache, hot skin, quick pulse, great thirst, epigastric pain, costiveness, and vomiting every few minutes such drinks as he took.

"Aug. 5, A. M. Had passed a restless night; had less sickness and headache; skin still hot; thirsty; tongue red with projecting papillæ, and inclining to dryness; tender epigastrium; urine voided at long intervals; bowels moved.—Evening. No material change.

"6th, A. M. Occasional short naps, but generally restless; some epistaxis; hiccough; vomiting a dark flaky substance; pulse less frequent; less heat of skin; declares himself better, and expects to be able to work on Monday, the 8th.—Evening. Through the day the hiccough left, but now has returned; still epistaxis; no urine passed to-day; used catheter, and he voided from eight to twelve ounces of dark red water; aspect of the case evidently worse.

"7th, A. M. More exhausted; brown discharges from stomach ceased, and now vomits only the substances swallowed; pulse more frequent; occasional epistaxis; pain in epigastrium ceased; thirst.—Evening. Increasing debility; stimulants internally and externally produce no effect; bowels moved by enema, discharge dark brown.

"8th, A. M. Much epistaxis during the night; was very restless, delirious, and requires much exertion to keep him in bed; hiccough; tongue dry in centre; nostrils plugged, and bleeding stopped.—In the evening was worse.

"Tuesday, 9th. Another disturbed night; hands and feet cold; skin clammy and cold; head hot; pulse more frequent; nausea; skin slightly yellow. Died at 8 o'clock P. M. Became more yellow after death. Was sick five days five hours. No autopsy."

CASE III.—No full note was taken of the third case. It was that of an apprentice to Jonathan Z., a ship-carpenter, in Brandywine, and the first which occurred in his family. He complained of being unwell after having been engaged in caulking a vessel's hold, where it was very hot, and the bilge-water, as he said, very offensive. His symptoms were headache, fever, pulse not very frequent, pain in back and limbs, vomiting, some tenderness of epigastrium, thirst, costiveness, urine passed at long intervals. About the third day, a remission of symptoms occurred, and he came down stairs; the same night he grew worse; vomiting returned; he became delirious and

slightly yellow; and died seven days eighteen hours from the commencement of the attack.

CASE IV.—“Mrs. H., wife of Case II., not robust, had been unwell for several days, apparently from fatigue and anxiety. Was taken with a chill August 11, A. M., followed by considerable fever, and at 4 o'clock P. M. when Dr. M. saw her, was in a free perspiration; pulse 120; cephalgia; some thirst; slight coat with moisture on the tongue; no epigastric pain; bowels costive. Rode in the evening to her husband's funeral.

“August 12, A. M. Pulse 116; still pain of head on left side; thirst; skin dry; had a restless night; constipation; some nausea.

“13th, A. M. Had several dark stools; passed urine; pulse 115; tongue becoming dry in the centre; respiration more hurried; other symptoms as before. Four hours afterwards she was seized with convulsions, and died in an hour; skin slightly yellow before death, and deepened afterwards. She was sick two days seven hours. After death, a black matter escaped from the mouth and nose.”

CASE V. may be briefly described as follows: $\text{\AA}et.$ 8 years, was taken ill on August 13, having eaten watermelon freely. He lived on the same street, and nearly opposite Case I.; but spent much time about the shipyards.

“He had bathed five times, the day before, in the mill-race, having felt quite well; mean of thermometer 85°. Was taken with vomiting, headache, hot skin; pulse 100; free perspiration; tongue but little coated, moist; bowels costive; slight pain in epigastrium; thirst considerable; very restless.

“August 14. Less vomiting; but other symptoms as above.

“15th. Disposition to delirious singing; bowels loose, light-coloured stools; restless through the night; quite delirious and unintelligent; eyes injected. In the evening became opisthotonic, with occasional convulsions, and died 17th, 5 o'clock A. M. A little blood oozed from his mouth shortly before he died. Sick three days seventeen hours.”

CASE VI.—“Mrs. M. Z., wife of Jonathan Z., $\text{\aa}et.$ 42 years, awoke at 2 o'clock A. M. August 27, with a desire to vomit, headache, thirst, aching sensations in back and limbs, and pain in bowels. Had vomited once slightly before I saw her at 7 o'clock A. M. and had two stools. Had had no premonitory symptoms. Found pulse 124; skin hot and dry, except the forehead, which was moist; tongue dry in the middle; face flushed; forehead very painful; feet cool; nausea; and restlessness. At 10 o'clock A. M. more comfortable; no pain in bowels; pulse 124; slight perspiration; no nausea.—7 o'clock P. M. Pulse 114; tongue moist, with a whitish thin coat; feet cool; head very painful; no stool through the day; skin warm and rather dry; mind well balanced; some restlessness.

“August 28. Restless night; pulse 104; tongue moist; face flushed; rather less pain in head; one stool in night of dark-brown colour; feet cool; skin dry.—4 o'clock. Some moisture; urine passed freely; no pain on pressure over epigastrium or bowels.—10 P. M. Feels better; two stools; eyes still injected; less pain in head; pulse 100; tongue moist, red point; slight nausea.

“29th, 9 o'clock A. M. Pulse 102; slept but little; forehead more comfortable; tongue moist; skin dry; less pain in back and limbs; feet warm; some sordes on upper front teeth; one small dark-coloured stool.—1 P. M.

Disposed to sleep; eyes considerably injected; pupils natural; no nausea; no pain anywhere; rational.—9 P. M. Pulse 100; complains of sore throat for the first time; one stool, dark; no pain in head unless quickly moved; feels tired and exhausted; urine regularly passed.

"30th, 9 A. M. Pulse 100, less force; skin of more natural heat; eyes red and turbid; face appears swollen; disposed to lie quiet and doze at intervals; no pain; feels more exhausted; throat very sore; can scarcely swallow; mind clear.—4 P. M. Pulse 86; stronger; feet warm; stools thin and brown; for the first time regurgitates a dark flaky substance from the stomach. About 8½ o'clock a copious discharge of blood took place from the mouth during an effort to change her bedroom, after which death took place in about three hours. She lived from the attack three days nineteen hours. No yellowness before or after death."

CASE VII. was a sister of Case VI. She went from Wilmington to nurse her sister and the apprentice boy. Was a healthy woman, 40 years of age. She sickened on the 30th of August, the day her sister died, with headache, vomiting, pain in back and hips, and symptoms generally as in the case of her sister.

September 2, noon. Conjunctiva swollen and watery looking as if inebriated, dirty yellow, injected and ecchymosed, and remarkably inexpressive. Cheeks apparently swollen, not flushed; no heat of head, but some pain, and desires cold applications there; tongue slightly coated, colour of tip and edge natural; some pain in loins; none in stomach or bowels when she is undisturbed, but very sore on pressure; abdomen feels doughy; pulse 86, soft, weak; occasional tendency to nausea; bowels natural; thirst considerable; great tenderness of the skin over tibiae. In the evening, had vomited a small quantity of brown fluid matter, which became flaky on standing undisturbed; other symptoms much the same; moves readily in bed; and does not feel much prostrated; has had throughout a deep, slow respiration.

3d, 8 o'clock. About 9 o'clock, last evening, began to vomit copiously of the brown fluid, but it ceased through the night, and returned again this morning. In appearance, it resembled fine-cut tobacco chewed and thrown into a fluid of a light-brown colour. This flocculent portion subsided, and was not abundant compared with the whole quantity vomited. Passed one stool, semifluid and ash-coloured; tongue as yesterday; skin slightly yellow about the face and breast; is more dejected; feels great prostration; pulse 90; quite weak; thirst moderate.—4 P. M. Has begun in the last few hours to vomit or regurgitate bloody fluid; has more yellowness of surface; refuses medicines; intelligent.

Died on the 4th. Was quite yellow after death.

CASE VIII.—The next case occurred in the same family. The patient was aged 82 years. She had been indisposed during the whole time since Mrs. Z.'s attack, but on September 7 grew worse, complaining of nausea, headache, fever, delirium, deep yellow skin; no brown matter vomited; slight injection of eyes; moist tongue; and constipated bowels. She died in five and a half days.

Four other cases occurred in the same family.

CASE IX.—The ninth case was a youth, aged fifteen years, seized September 10, in the night, with nausea, vomiting, headache, and fever, and other symptoms strongly resembling those of his mother, Mrs. Z. In fifty-eight hours, dark flaky vomiting came on, and also epistaxis profuse, in spite of

plugging the nostrils; pulse at first 120, afterwards 100, weak; slight injection of eyes, pupils natural; delirium commenced on the third day; change of colour not marked. Lived three days and seven hours.

His brother, aged fourteen years, was attacked at the same time in the same manner; but, after twenty-four hours, his symptoms gradually subsided and he convalesced.

About the same time, Jonathan Z., their father, was suddenly attacked at midnight with nausea, a sense of fulness at the epigastrium; headache and fever. After walking about for two days, he grew more unwell, and went to bed for about the same period, after which he slowly convalesced.

The last case occurring in this family, if not on the Brandywine, was a niece of Mrs. Z., who had been engaged in nursing her. She was attacked suddenly but not violently with headache, nausea, and vomiting; muddy conjunctiva, hot skin, and restlessness. At the commencement of her attack, she removed to Wilmington. Her symptoms continued mild; but on the fifth day she discharged several times from her stomach a light brown fluid, with a flaky deposit, which her physician, Dr. Askew, considered the same as the brown vomiting of the other members of the family. The vomiting, however, did not continue, and she convalesced.

These were all the cases of this disease in Brandywine, which occurred under the observation of Dr. Miller. There were several cases of disease in Wilmington resembling the above in some of their features, but as their character was doubtful, no further notice will be taken of them, the purpose of this communication being, perhaps, fully answered by the foregoing.

The following is an analysis of the prominent symptoms of the above 12 cases. In 8 the attack was sudden; 10 had headache, in 4 frontal and violent; 10 constipation; 5 yellow skin, 2 dusky; 9 had vomiting, 4 nausea alone; 7 hot skin; 5 marked pain in the back; 3 sore throat; 9 tenderness of epigastrium; 5 decided thirst; 7 restlessness; 3 hiccup; 3 light-coloured stools at some period; 2 epistaxis; 2 blood from mouth; 6 dark flaky vomiting; 7 delirium; 4 injected eyes; 5 urine retained or tardily passed; 3 pain and soreness of the legs; 5 of the fatal cases had a marked abatement of the first train of symptoms, on or about the third day. The highest rate of pulse in the early stage was 124 per minute; the lowest at any stage was 80.

The tongue in two cases was red; in eight was moist for three days, of light red colour, slight coat; and dry tongue in the progress of the disease was rare.¹

Dr. Rush mentions several symptoms as of frequent occurrence in the fever of 1793, which were not found in the above; viz. a burning pain in the sto-

¹ Four of the cases had numerous spots on the face, arms, chest, and legs, resembling mosquito bites, which did not disappear on pressure, and were of a brighter colour than petechia. Mosquitos were so abundant here during the period when this fever existed, that I was not willing to report these spots as symptomatic of disease, although I believed them to be so.

mach, profuse discharges of bile from the stomach and bowels, dilatation of the pupils, and an intermittent pulse.

As to the treatment pursued in these cases, it may be said in a few words, that in the commencement it was such as is usually pursued in fevers of a similar aspect; while towards the close of the first, or the invasion of the second stage, quinia in moderate doses, sugar of lead, and lemon-juice, with broths and stimulants, either wine, ammonia, capsicum, or creasote, and in the last case, mur. tinct. of iron, were prescribed. Dr. Askew states that from the time of the administration of this last medicine, the brown vomiting in that case ceased.

The dates of the occurrence of nine cases were respectively as follows: July 27, 4 o'clock P. M.; Aug. 4, 3 P. M.; 10th, 3 P. M.; 11th, 6 A. M.; 13th, 12 A. M.; 27th, 2 A. M.; 30th, 10 A. M.; Sept. 7, 5 P. M.; 10th, 4 A. M.

The duration of the disease from development to death in these cases, was respectively as follows: 3 days, 12 hours; 5 days, 5 hours; 7 days, 18 hours; 2 days, 7 hours; 2 days, 17 hours; 3 days, 19 hours; 4 days, 16 hours; 5 days, 15 hours; and 3 days, 7 hours.

In endeavouring to fix the nosology of this disease, the above analysis, and the history of the cases, imperfect as this is known to be, will be left to produce their own impression; but the most striking characteristics of the disease will be reviewed, and from them some result deduced, which it is hoped will be just. It will be observed 1st, that the general similarity between the cases throughout, was as marked as that which usually obtains in the same number of violent cases of most diseases; next, that an evident subsidence of active symptoms took place in the fatal cases about the third day: a lull in the disease apparently occurring of a most delusive character, both to patient and physician; 3d, that the fatal aggravation which then took place, terminated in one or two of the cases with remarkable rapidity, and in all marched steadily onward through this latter stage; and last, that a hemorrhagic diathesis was rapidly developed in nearly all the fatal cases, as exhibited by epistaxis, the exudation of blood into the stomach, either retained, or subsequently expelled. These circumstances indicated the powerful and pervading influence of some poisonous principle of not less fatality than we see in cholera or searlatina, and were sufficient to excite suspicion of the disease being yellow fever, at an early period of its existence, a suspicion which deepened into conviction day by day. At present, but one opinion prevails among the physicians of this vicinity, whatever may be the impression produced elsewhere by the examination of the above facts.

It is an interesting fact that at the time when these cases appeared, Brandywine and its vicinity were in as healthful a state as usually obtains during the summer months. In Wilmington, from the latter part of July or the 1st of August, intermittent fever prevailed to a greater extent than since the year 1846, but did not rise to a higher grade than the simple form, or occasionally

that of a mild remittent. A tendency to hemorrhage greater than ordinary had been observed among us, connected not only with dysenteric cases, but also with tubercular disease.

A period of six weeks occurred between July 27, the commencement of the first, and September 13, the termination of the last case, during which time the thermometrical mean was 75° ; and the mean from that period to the end of the month was 67° , a temperature 4° higher than the average of the last 60 years; yet the wonted uniformity of health returned to the village with the removal or recovery of the last case, and was not again interrupted.

The other point of importance connected with this disease is to ascertain, if possible, its origin.

The history of the vessel which Ezra B., the first case, assisted in bringing up to Brandywine village, has been mentioned. Previously to her lying up at the New Castle wharf, she had been engaged in the wood-trade, and had confined her trips to the Delaware and Susquehanna Rivers. As regards the state of the bilge-water in her hold, the common statement of the temporary crew is that it was perceptibly offensive. None of the other persons on board became sick, however, and none of the previous or subsequent crew, as far as can be ascertained, suffered any bad effects from this cause. It is difficult to refer to an exposure of a few hours in such an atmosphere so overwhelming a result in one case, while all the rest of the company were unaffected, as well as previous and subsequent crews. Indeed, it must be acknowledged that, excepting the general causes which were in operation upon the mass of the people of this vicinity, none can be found adequate to the production of the case; and that whatever value may be attached to the local agents hereafter to be mentioned, which were present in the other cases, they could have no bearing upon this.¹

All the other cases, except the fifth, occurred about 400 yards from Case I., at the eastern extremity of the village, the principal part of it lying between, and none of them were in contact with this patient directly or indirectly.

Mr. H., Case II., was taken sick after having been engaged on that morning and the previous day in unlading a sloop at one of the mills, he being in the second story of the mill. He complained very much of the dust of the grain, and the heat of the day, but ate heartily at noon. The sloop belonged to B. W., and traded in the Delaware and Virginia Rivers, and had been no further south.

Case V. was an apprentice to Jon. Z., the ship-carpenter, and lived in his family. He began to complain after having been engaged on a hot day in repairing the hold of another Brandywine vessel, which also traded in the same rivers as the above, and which he stated contained very offensive bilge-

¹ A visit to Philadelphia was made by Ezra B. on July 4th, but he spent the day in the upper part of the city, and was not south of Chestnut Street, and consequently not in the infected district.

water. But no difficulty on that point had been experienced by the crew, and there had been none of them sick previously or subsequently; so that this cause does not appear sufficient to have originated his disease.¹

The yards of the two families from which all the cases, excepting Cases I. and V. came, adjoined, and the houses were situated about 100 feet apart on the bluff above mentioned, and about 200 feet from the creek, the bank continuing boldly to the water's edge, and against it, the tide ebbs and flows. Between Mr. Z.'s house and the creek is his ship-yard, which has been established for half a century, and is consequently covered by a large quantity of wood-chips in various stages of decomposition, and their residuum.

The hot weather of June was followed by the rainy weather of July, during which 6.29 inches of water fell, while the mean heat of the month was 77.14 degrees, which was greater than the average for this neighbourhood by two degrees. August followed with its intense heat, the mean rate of the thermometer being 76.76°, or nearly 4° above the common average. The whole amount of rain for this month was 3.08 inches, which fell principally in the first half. The tendency of the combined action of heat and moisture in this yard was to produce a decomposition of the woody fibre lying just below the surface, and in some degree, of the timber, which lay about in considerable quantity and in various stages of seasoning, to the result of which all who were engaged in the yard were exposed during the day, but the neighbouring families only at night. This observation is greatly modified by the fact that the face of the yard had a considerable declivity, and could not continue wet except during rainy weather, though it might be damp beneath, the substratum of the soil being clay. No peculiar effluvium was recognized by the workmen or the family, although one of the sisters of Mrs. Z. who was in the house during her illness and afterwards, noticed on several evenings an unpleasant sickening odour, such as might have resulted from the timber and wood-chips lying about in such abundance, when wet. This exhalation was not perceptible at a dwelling lying east of, and about sixty yards from the centre of the ship-yard, and consequently in the direction of the prevailing winds, whose tenants would have been susceptible to it, if it had extended that distance, as they had removed but a few months previously from the upper country.

The yard of the dwelling of Case II. had been permitted to become very filthy from the deposit of a number of fowls, to which was added the effluvium from a duck puddle, a foul hog-pen, and two privies. The cellar also of his house, was in an unclean state.

During the summer months, the wind blew from the west, for the whole or a part of seventy-two days, and fifty-nine from the south, and consequently directed whatever exhalations originated in the ship-yard, and the other pre-

¹ This vessel had just arrived from Virginia with a load of wheat, having been a month on the trip.

mises, just mentioned, towards several houses lying northwardly and eastwardly, and near at hand, especially upon that occupied by Mr. Z.

In one of the houses lying near that of Mr. Z., a fatal case of disease, complicated with abortion, occurred, after the removal of the family of Mr. Z. from the neighbourhood. No account sufficiently satisfactory has been obtained to warrant a positive opinion as to its nature; though enough to lead to the belief that it was the same as the others. No other person was sick in any other of the neighbouring dwellings.

In Jon. Z.'s family eight were attacked, of whom five died. He left the house September 12, with two little girls and a son, he and the boy being convalescent from their attack. The female children were slightly sick afterwards.

It may be remarked that none of the physicians in attendance upon these cases, none of the members of the families in which Cases I. and IV. occurred, or of the families in Wilmington into which Jon. Z. and children, and Case XII. removed, were affected by the disease.

Two of the cases, first and fifth, had been exposed directly to the effluvium of bilge-water, but case second had no such exposure, and was subjected only to the causes of disease which have been mentioned, as existing beneath and around his dwelling. To the other cases which originated in these two families, the advocates of contagion will find abundant room for the application of their doctrine, while they will find themselves at fault in the absence of infection from the families in which Cases I. and V. occurred, and also from those exposed in Wilmington, as above stated.

I will only remark further, that whatever doubts may have been thrown around the history of the outbreaks of yellow fever in other places, and consequently upon the conclusions to be deduced from them, if we allow the Brandywine fever to have been yellow fever, we must unquestionably concede, in this instance, a home origin, and that a tropical climate had nothing whatever to do with furnishing the materials of it. In the extraordinary heat of the season, its primary action upon the physical energies of man, and its secondary operation through the decomposition of animal and vegetable substances, assisted by an epidemic influence which seemed to prevail extensively in our country, either dependent upon the above agencies, or merely coexistent with them, appear to be the origin of this fever among us; and, if this be true, it is not necessary to refer its extension in any case to contagion, for whatever caused it in one instance was, of course, competent to continue it. Why it fell upon the open banks of the Brandywine, and passed many places in Wilmington apparently as well, or better prepared for its reception, is a question which in the present state of our knowledge of pestilential diseases, does not admit of a satisfactory solution.

Note.—The following extract from the meteorological reports of the *Medical News*, recorded in Philadelphia, and from which I have taken all my

statements of the weather, will be interesting in this connection. "In looking over our records, we find that the mean temperature of the three summer months was 76.77-100 degrees, which is about 4 degrees above the mean summer heat of Philadelphia, as deduced from observations for the last sixty-four years. This temperature has been exceeded but five times within that period, and then by less than one degree. Thus, in the years 1793 and 1798, when yellow fever prevailed in Philadelphia, and in 1822, the average summer heat was 77 degrees, and in 1828 and 1838 it rose to 77½ degrees."

ART. III.—*Extracts from the Records of the Boston Society for Medical Improvement.* By Wm. W. MORLAND, M. D., Secretary.

November 14. Excision of Head of Femur. Dr. PARKMAN.—A boy aged 12 years entered the Hospital May 9, presenting the usual symptoms of hip disease of the right side, in a somewhat advanced form, and which was said to have existed six months; its probable existence was, however, longer. During the summer, the symptoms became more and more aggravated, and large abscesses opened in the groin, on the inside of thigh, and on the nates; and the limb was very much retracted by the distortion of the pelvis, from the patient's necessary position on the left side, and the impossibility of employing extension, or similar means. Hectic symptoms also supervened, and at two periods he seemed likely to be carried off by a profuse diarrhoea. Under these circumstances, it was decided to lay open the abscess on the nates, which had now dissected the skin from below the trochanter, almost to the crest of the ilium, and to make an examination of the condition of the joint, with a view of removing the head of the femur, if such a course should appear indicated. For this purpose, on October 19, the patient being thoroughly etherized, the abscess over the joint was freely laid open, and the skin, gaping, disclosed a granulating surface of six inches square. The head of the bone was in the socket, but on rotation of the limb, the crepitus which was felt clearly indicated extensive caries. An opening was therefore made through the upper part of the capsular ligament, and, the round ligament having been already destroyed by the disease, the head of the bone was turned from the socket and removed, at the middle of the neck, by a strong pair of cutting forceps. The acetabulum was felt to be carious in about one-quarter of its extent, but of course nothing was done to this. Since the operation, the patient's progress has been most satisfactory. The large granulating surface has been slowly contracting; the limb is drawn down by weights, and the constitutional symptoms have entirely disappeared. There is good appetite, no diarrhoea, a marked increase of flesh, and every prospect of a favourable termination.

The specimen exhibited to the Society, showed the removal of the entire cartilage from the articulating surface, with a necrosis and commencing line of separation of all the denuded parts. It was clear that the result of such a case, if left to nature, and provided the powers of the patient had held out, of which there was little probability, would have been a large sequestrum in

the cavity of the joint, and any attempts on the part of nature, to discharge this by ulceration, would in all probability have proved abortive.

Jan. 27. The patient continues to make very satisfactory progress, and there are no constitutional symptoms.

Lithotritry.—Dr. J. MASON WARREN showed the fragments of an oxalate of lime calculus, removed by the crushing operation. The patient was 30 years old, and had the first symptoms of the disease 10 years since. He had previously, after a nephritic attack, passed a small calculus from the urethra. His symptoms at the time of the operation were great pain, a frequent desire to pass water, bloody urine, and inability to bear the jolting of any vehicle. The water was passed every half hour, both day and night. The measure of the calculus, when first seized by the lithotrite, was fourteen lines in diameter. It was easily crushed, with scarcely any pain to the patient; fragments passed off without difficulty in the course of twenty-four hours. The operation was repeated three times in a fortnight, without the use of ether, giving scarcely any more uneasiness than an ordinary case of catheterism, and the patient discharged in about three weeks perfectly relieved. Dr. W. stated another case that had been operated on in the spring, the patient having for fourteen years endured the most excruciating suffering, being unable to get into bed without assistance, from the pain produced by the motions of the calculus. The stone, which was a large one, was destroyed in about six operations, and, notwithstanding the long time the bladder had been submitted to this severe irritation, it seemed at once to acquire its natural tone, on the removal of the irritating cause. Dr. W. said that for the last ten or twelve years he had treated, on an average, three cases of stone in two years, by the lithotritic operation, the patients being from ten years of age up to seventy, one or two of the elder patients having the prostate in a greatly enlarged state. Still, he had not had an unfavourable result, and in no case was the operation, once commenced, abandoned as impracticable. In the cases of enlarged prostate, the stone had usually been found lodged in a *cul-de-sac* behind the prostate, and it has been found necessary to dislodge it by means of the beak of the lithotrite turned backwards, and the stone pushed into the bladder before it could be seized and crushed. In one of these cases, considerable difficulty was experienced from the fragments getting back into the sac and being retained there, and acting as nuclei for fresh concretions, requiring very frequent operations before they could all be removed.

Dr. W. also exhibited a very large calculus, removed from the body of a gentleman after death, which had been lodged in the way above stated, behind the prostate. He had suffered with it for many years, and finally it was the cause of his death. He had been sounded by a number of distinguished surgeons at a distance, and by some, declared to have a stone, by others not. From this reason he had deferred for many years submitting to any operation. Dr. W. sounded him in the way above stated, and detected a stone. An operation was in this case thought inexpedient, on account of the great disease existing in the whole urinary apparatus. After death the kidneys were found extensively ulcerated, the ureters enlarged, and the bladder greatly thickened and sacculated, with a cavity or depression behind the enlarged prostate, in which the calculus was lodged and partially concealed.

Scrofulous Disease of the Knee-Joint.—The specimen was shown by Dr. S. D. TOWNSEND, who had removed it from a scrofulous girl, 14 years old, who is affected with phthisis, but, of late, has been improving somewhat and

has gained flesh, although having a cavity in the summit of the left lung. The amputation was requested, for the relief of constant pain in the limb. The patient was confined to her bed for a year, by reason of the diseased knee alone, and unable to be moved, except under the influence of ether. Patient died suddenly six weeks after the operation, of hemorrhage from the lungs.

At the next subsequent meeting (Nov. 28), Dr. J. B. S. JACKSON said that, on making a transverse incision into the cancellated structure of the bones removed, no tubercle was discovered. Dr. J. added, that once only, and that in disease of the vertebræ, had he seen tubercle in bone; in an external joint, never; he thinks the disease, in the present instance, may have originated in the synovial membrane; at first, there may have been acute synovitis.

[In the London *Lancet* for November, 1853, Mr. SOLLY remarks: "I do not think, with some surgeons, that the removal of a scrofulous joint increases the tendency to tuberculous disease of the lungs." He also adds, unless their be positive evidence of disease of the lungs, he would not think it right to deprive such a patient of relief by removal of the affected joint. Moreover, he states that in two cases he has amputated *scrofulous knee-joints* where there were some symptoms of tubercular deposit in the lungs, but, in both cases, the patients recovered from the operation, regained their health, and, he believes they are now alive, six years having elapsed.—SECRETARY.]

Injuries by a Fall; Compound Dislocation of Left Ankle; Fracture at the Base of the Brain, &c. Dr. CABOT.—Daniel O'D., aet. 33 years, rigger, on Nov. 8, 1853, fell twenty-four feet, striking on his feet, and was said by bystanders to have rebounded to the height of three or four feet, and then to have fallen backwards, striking the back of his head. One hour and a half afterwards he was brought to the Hospital; pulse 72; rational; answers coherent.

Dr. C. saw him two hours after the accident, about one o'clock P. M. At that time he began to ramble, answering at random, when roused, and dosing in the intervals. When examination of the injuries about the ankle was made, he complained of the pain, and gave some evidences of rationality. There was a compound dislocation of left ankle; the foot in front of the astragalus being turned downwards and inwards, the surface of the astragalus articulating with the navicularis protruding through an extensive laceration of the soft parts, below and a little in front of external malleolus, the astragalus being separated from its articulations with the bones of the ankle, and with the os calcis, though still retaining its relations as regards position with the tibia and fibula. He was etherized (without the occurrence of any peculiar symptom), and the dislocation reduced, the edges of the wound brought together, and the limb secured in a fracture-box. After getting him to bed, he expectorated a small quantity of bloody mucus. On examination of his head, could get no grating, nor was there other evidence of fracture about the vault of the cranium, upper jaw, or face, except some puffiness of scalp, about the back of head. Pulse about 60; tolerably full and strong. Some appearance of delirium; possibly owing to ether. Pupils very greatly contracted.

He became more and more sleepy, and the difficulty of rousing him increased. Dr. C. saw him again, at about six o'clock the same evening, and found him more comatose, though he could be imperfectly roused by loud shouting. Pupils not so much contracted, somewhat oscillating; puffiness of scalp much increased; pulse 128, thready; respiration, 36. Face very pale; no oozing of blood or serum had at any time taken place from either ear.

Coma became more and more complete; the pupils were dilated, &c., and he died at eleven o'clock P. M., thirteen hours after injury.

Post-mortem examination, eleven and a half hours after death. Astragalus found to be dislocated from the bones of the foot, but still retaining its position between the malleoli; a small piece broken off on its outer inferior edge.

Os calcis denuded of cartilage and much bruised, over a small surface nearly corresponding to the injury of the astragalus; the soft parts extensively torn; anterior tibial artery entire; condition of posterior tibial artery not ascertained, owing to haste in making the examination, and desire to avoid unnecessary defacement of body.

Head; blood was found effused between the scalp and pericranium, over the whole back of the head, from the neck almost to coronal suture.

On removing the calvarium, there was found extensive laceration of both anterior lobes (they being rather *mashed up*, than lacerated, as the expression is ordinarily understood), on their inferior surfaces, to the extent on each side of about one and a half inches, and one-third of an inch in depth; considerable blood being effused about the injury. The inferior surface of the left middle lobe and the posterior extremity of the left hemisphere were each lacerated to the extent of about an inch, and to the depth of about half an inch; the cerebral substance about the lacerations in some parts had a soft gelatiniform appearance, as it has about an apoplectic effusion, and there was perhaps a slight trace of yellowish discoloration.

The petrous portion of the left temporal bone was broken through, the fracture extending for some distance along the lateral sinus, but not lacerating it; meatus auditorius not involved. Continuous with the fracture, there was an extensive separation of the lambdoidal suture. There was some effusion of blood into the temporal bones.

Fibrous Tumour of the Uterus; exploratory Gastrotomy.—Dr. J. B. S. JACKSON showed the specimen, sent to him, with a history of the case, by Dr. CUTTER, of Woburn. The whole mass weighs $3\frac{1}{2}$ lbs. The cervix and fundus uteri were involved by a large tumour, from which several smaller ones projected into the cavity of the abdomen. The diagram on page 622, Vol. VI. of the *American Med. Association's Transactions*, represents a similar case. The structure of these tumours was lax and coarse, and the bloodvessels in them largely developed. To a portion of the external surface of one of them a piece of omentum was attached by old adhesions.

The patient was an unmarried female, 33 years of age, and first noticed the tumour about seven years ago. Two years afterwards, she consulted a physician, and it was then very perceptible in the left hypogastric region. Its development was attended with several attacks of peritonitis, and for two or three years with dysuria, so that she was obliged to have recourse to the catheter. Catamenia regular, but attended of late with some hemorrhage. General health has decidedly failed since Feb. 1853; patient, however, continued to be employed as a nurse until midsummer, when she had a more severe attack of soreness over the abdomen, which was followed by ascites, and for which, she was twice tapped. She was seen several times by Prof. CHANNING and other physicians, and her case seemed hopeless. She had seen some accounts of recent operations in somewhat similar cases, and resolutely determined not to die without an operation that proffered the only hope of relief. Oct. 12th, in presence of Drs. CHANNING and PARKMAN of Boston, SANBORN of Lowell, and CUTTER, Dr. G. KIMBALL, of Lowell, made an incision in the median line, nine inches in length, and fully exposed the tumour. Its true character was plainly seen, and its connections forbade removal. A small projecting portion being cut into, bled so freely as to require a liga-

ture. The wound was then closed up, and the patient suffered very little for the first week, having been kept fully under the influence of large doses of opium. She died twelve days after the operation. Very few peritoneal adhesions were found on dissection; most of the wound in the integuments was united, and the cut in the tumour entirely healed. In addition, it should be further stated, that *always* on examination per vaginam, the tumour could be felt low in the pelvis; and previous to the operation, Simpson's sound readily penetrated five inches within the os uteri.

November 28. Encysted Tumour of the Breast.—Dr. DURKEE exhibited the specimen. The following account was furnished by Dr. B. S. SHAW, who sent the specimen to the Society:—

This tumour was removed by Dr. HIRCHCOCK, of Fitchburg, November 26, from a maiden lady, at. 70. It was of four years' standing, and had increased rapidly in size during the last six months. No pain nor tenderness had been occasioned by it. It was easily and perfectly separated from the breast. Walls of cyst at first seemed thin, but firm, allowing fluctuation; on further examination, they were found to possess considerable thickness. Contents, a gelatinous mass (as seen in the section made this P. M.) of different colours, light red, dark red, green, and also, in spots, black and white. Contains no cancer cells, no pus cells, and no well-marked microscopic structures except blood-globules, recent and altered fatty matter, and cholesterin.

Entire want of the Lacteal Secretion. Dr. STORER.—Six weeks since, a lady 21 years of age, whose health had been uniformly good for years, was confined with her first child. The *breasts secreted no milk*, although suction by the mouth had been continued three times daily by some member of her family until within a few days.

Dr. ABBOT mentioned a case of non-secretion of milk for six weeks; it then appeared; the tardy action, Dr. A. thought, was owing to excessive prostration of the patient; the child was stillborn.

Dr. MINOT referred to a case of want of secretion. No efforts were made to excite the glands to action, but rather the reverse, by reason of peculiar circumstances rendering their quiescence desirable. Sulphate of magnesia was administered.

Dr. STORER spoke of a case of weaning the child at nine months by reason of a freak of the mother; the milk disappeared, but returned on reapplication of the child to the breast.

Dr. PUTNAM referred to a case of non-secretion. He considered it constitutional.

Dr. PARKMAN said that the leaves of the castor-oil plant, made into a warm stupe, and applied to the breasts, had been vaunted lately in foreign journals as possessed of almost marvellous efficacy in the production of the lacteal secretion.

Delivery without any Sanguineous Discharge.—Dr. W. E. TOWNSEND reported that, on the night of October 22, he attended Mrs. C., a stout, well-made woman, about 25 years old, in her second confinement; and that she had an easy delivery after five hours from the commencement of her pains. The child was of good size and in good condition, but its birth was unaccompanied by any sanguineous discharge, nor did one drop of blood follow the placenta.

The nurse, in the morning, stated that when she changed the patient's clothes,

she did not discover any stain of blood. No flow took place till after twelve hours, and the application of warm fomentations to the abdomen. It was then scanty, and, after continuing in a slight degree for a day or two, ceased.

For the first week after delivery, the milk was very abundant and of good quality; it then became thick and stringy, then bloody, and at the end of a fortnight stopped altogether.

Mrs. C. stated that the same changes occurred in her milk after her first confinement, and that the loss of blood upon and after that delivery was unnaturally small.

Both children are now alive and in good health.

Violent Hemorrhage during Gestation, with Pain, &c.; Child carried to full term, and safely born.—Dr. PARKS reported the case.

The patient was small and of spare habit; the flow of blood came on suddenly, at the end of the sixth month, after unwonted exertion, and was not repeated. Digital examination of the cervix uteri afforded no evidence of ulceration. The blood lost saturated a sheet. The patient was safely delivered three weeks since. Perfect rest and the usual caution in like cases, for several weeks, were successful in obtaining this desirable result. Dr. P. believed that there was no ulceration of the os uteri, and remarked that, "although, as Mr. Whitehead has clearly shown, hemorrhage may occur in connection with ulceration, and pregnancy nevertheless be uninterrupted thereby (particularly if the inflammatory affection be topically treated), he believed it quite unusual to find the progress of gestation continue to term, when large gushes of blood occurred independently of a morbid condition of the os and cervix uteri."

Dr. H. G. CLARK said he had had, in former years, in dispensary practice, patients who flowed, during gestation, until they were blanched, yet went their full term, and did well.

[The class of patients in whom such accidents occur, must, of course, have some influence upon the result. The power of endurance nearly always manifested in all stages of the pregnant and parturient condition by the labouring classes, and particularly by the Irish, is certainly very remarkable. In no point is it more noticeable than in the amount of labour and exertion undergone by them when pregnant, and in the rapidity of rising from child-bed. In the last matter, the only difficulty being to keep them recumbent sufficiently long to gain security against after accidents, to be feared from too early movement.—SECRETARY.]

Frottement over an Abdominal Tumour.—Dr. J. B. S. JACKSON reported the case, which he had lately seen. The patient was an elderly woman, and had, apparently, ovarian dropsy complicated with ascites. The tumour seemed to consist of at least four sacs of large and nearly equal size. One of these, situated towards the epigastrium, was more tense than the rest, and tender upon pressure, as if from inflammation of its inner surface, which seems to occur so frequently in these cases. Upon pressure over this cyst, a sensation of friction was perceived, which was strongly marked, and resembled perfectly the creaking of new leather. Dr. J. remarked that there may have been peritonitis over the cyst, and not an inflammation of the interior as he supposed; the surface then would have been roughened and the phenomenon readily explained. The signs were all limited, however, to this one cyst. The patient was in a very comfortable state, and did not appear at all like one suffering from peritonitis; and, further, this last form of inflammation is rare.

in ovarian disease as compared with that which was supposed to exist in this case. Dr. J. referred to two other cases that he had reported to the Society (*Am. Journ. of Med. Sci.* July, 1850), in both of which there was ascites, and in neither of them any degree of peritonitis.

Typhoid Fever, with Abscess in the Lungs and Subcutaneous Cellular Tissue.—Dr. PUTNAM reported the case of a young man of robust constitution, in whom, during the third week of fever, small knots or indurations were felt below the skin. They soon lost their definite form, softened down, and some of them disappeared; others went on to suppuration. This process was quite short, in some instances being completed in twenty-four hours. The patient's attention was generally directed to them by some degree of pain, but sometimes they were accidentally discovered. The skin in most cases was not inflamed or reddened, even when the pus had reached the surface. They appeared in irregular succession, and were of various sizes, from one to four or six inches in diameter. The whole number was twenty-four, found in various parts of the trunk and limbs, one of them completely surrounding, and causing great distension of, the left knee-joint. Some of them were opened, and pressure applied, when there appeared a tendency to burrow into the cellular membrane. No one of the glands was affected. During the sixth week a large quantity of pus was discharged from the lungs. He ultimately recovered.

Another case of purulent deposit, after typhoid fever, occurred three years since, in which the patient was nearly choked by the sudden and profuse discharge of pus from the lungs. The skin became cold and livid, and he was for several hours considered moribund. Two or three times a week, for the space of a month, the paroxysms of cough returned with copious expectoration of fetid pus. His recovery was perfect.

Dr. Putnam stated further that there were three cases in the Hospital at the present time, and one other had occurred in a neighbouring city. In neither of these was there abscess in the lung; but they all should be referred to the class of cases very appropriately termed, by Dr. Jenner, pyogenic fever. These were the only cases that had come to his knowledge, and he considered it a very infrequent complication of typhoid fever in this vicinity.

Single Congenital Cataract.—Dr. BETHUNE reported the following cases: Emily H., 15 years of age, applied at the Infirmary with cataract of the left eye only. A lady who came with her, was present at her birth—which was without accident—and described the appearance of the eye as much the same as at present. Dr. B. remarked that he had very rarely seen this disease confined to one eye.

Singular Malformation of Iris.—Nov. 14, Dr. B. was called in consultation to see a gentleman with mydriasis of the left eye. The attack was sudden; the pupil dilated and fixed, and the case presented nothing remarkable, with the exception of a peculiar appearance of the iris, to which attention was drawn by the surgeon in attendance. A segment of the pupillary circle at the inner margin was cut off by a fine light thread running from below upward. From this thread, fixed by its two extremities to the edge of the iris, two little branches proceeded, also attached at the other extremity to the edge of the iris. The main line, if it may so be called, at first meeting the iris at its upper attachment, seemed imperfectly joined, but soon melted into the margin of the pupil. The patient was not aware of having met with any previous accident to the eye, or of any disease to account for such an appear-

ance; and it was agreed by the attending surgeon, whose experience in disease of the eye had been very large, that it could have no connection with the present attack, and was therefore probably congenital. In the usual state of the pupil, it probably would have escaped notice, lying relaxed on the surface of the iris. Indeed, it could hardly be distinctly made out without a magnifying glass. On close examination, however, Dr. B. could not resist the impression that it was a portion of the iris itself, detached by a blow of some kind; and this impression was confirmed by examination of the iris, which, in the limits embraced by the attachments of the thread, was seen with its edge slightly thickened, and less sharply defined than it appeared elsewhere. How such an accident should have occurred, *in utero*, it is difficult to conceive. The accompanying figure is an imperfect representation from an outline made on the spot. These threads were nearly as fine as a cobweb.



Severe Injury to Head.—Dr. CABOT reported this case. The patient, J. D., an Irish labourer, on Saturday, November 19, had his head bruised between a railway engine and tender, while engaged in "shackling" them together. The engineer and some of the bystanders heard a loud "crunching" sound at the time. The accident occurred at East Boston. Some hemorrhage took place at the time from the nose, mouth, and from both ears. On admission into the Massachusetts General Hospital, November 23, he complained of pain in the head—not, by his own account, existent previous to the accident. He has had slight bleedings from the right ear every day since the accident; pupils of eyes natural. Ordered light, farinaceous diet; cold compresses to head, &c.; he had taken a dose of calomel and jalap, which had salivated him.

Nov. 25. Remains about the same; paralysis of facial nerves on both sides. Apply four leeches to each temple; continue compresses wet with cold water.

26th. Much relieved by leeching and cold applications; bowels loose; pulse 72, feeble.

28th. Nearly the same; pulse 64, feeble.

30th. Less rolling of the eyeballs upwards than at first; no dejection for two days. R. Solutionis magnesiae sulphatis, infusi sennæ comp. $\frac{aa}{3}$ ij.

Dec. 1. More comfortable; two operations from medicine; no hemorrhage from the ears since entrance.

4th. Galvanism was tried yesterday, the current being directed to the sides of the face, along the track of the seventh pair of nerves; face paralysed; cannot close eyelids.

5th. Mouth quite sore; some bleeding from the gums; his food gets between the gums and the cheeks and annoys him. A gargle of the following form was used: R. Acidi tannici gr. x; aquæ rosæ $\frac{3}{4}$ j. M. No alvine dejection for three days; enema to be given; bread and tea for food.

7th. Apply, front of each ear, ceratum cantharidis, 1 to $1\frac{1}{2}$ inches; may take broth.

12th. Remains comfortable.

Discharged, feeling well; but the paralysis of the facial nerve remains.

Dec. 12. Case of Poisoning by Aconite, reported by Dr. PERRY.—Dr. P. was called, Nov. 18, at 11 o'clock P. M., to see Mrs. E., 84 years of age, who was taken suddenly ill after having swallowed some quack medicine for the cure of a slight neuralgic or rheumatic affection. In a few minutes

after taking the medicine she was attacked with distress at the stomach, which was soon followed by vomiting, dryness of the throat, with a burning sensation which extended to the stomach, with prickling of the whole surface of the body, and a confused feeling in the head. When Dr. P. arrived, which was in about half an hour after the attack, the following symptoms were present: distress at stomach, retching, and occasionally vomiting, cold extremities, pulse small—140, pupils contracted, countenance anxious, surface of the body covered with a cold sweat; great uneasiness, patient tossing from one side of the bed to the other. It was impossible for her to retain anything on the stomach; and such was her restlessness that it was difficult to apply external heat. In a short time she began to have convulsions, the upper extremities being more affected than the lower. These continued for about half an hour, when, after having a most violent one, which it was thought would terminate in death, she sank into a comatose state. Her breathing was stertorous, pupils dilated, and would not contract under a strong light; pulse full—40 in a minute, with entire loss of consciousness. She remained in this state for about five hours, when her extremities began to grow warm, the pulse quickened, and there was some evidence of returning sensibility. In the course of the forenoon, on the day following the attack, her consciousness returned, and from that time she had no uncomfortable symptoms. She was quite deaf before this, and she thinks her hearing has been much improved. All the symptoms in this case were so like the effects of some vegetable poison, that Dr. P. had the medicine analyzed, but no poisonous substance could be detected in it. It was afterwards ascertained that she had taken some of the *strong tincture of aconite*, which had been recommended to her as an external application over the seat of her neuralgic pain. Dr. C. ELLIS was kind enough to remain with this patient for some hours, and Dr. SHAW analyzed the medicine.

Dr. Perry said that this case differs from most of those which he had found recorded, in this respect—that the patient had coma. The mental faculties are usually not much disordered, and consciousness remains until a few moments before death. The convulsions too were stronger in this instance than usual. They are described by most writers as spasmodic movements rather than convulsions; and sometimes even such movements do not occur.

Factitious Bezoar.—Some years ago this specimen was brought from Switzerland by the late Dr. AMOS BINNEY, and it was subsequently given to a member of this Society. It was said to have been taken or discharged from the intestines of a goat, and was of a dark brown colour, smooth upon the surface, and about the size and form of a large nutmeg. Recently, it has been analyzed by Dr. BACON, and the following is an extract from his report:—“Three grains of the bezoar, thoroughly dried, were used for a partial quantitative analysis, and this gave 55 per cent. of organic matter, including organic salts of potash, lime, and magnesia, with traces of sulphates and phosphates; 40 per cent. of iron, and 5 per cent. of siliceous sand. Of the iron, 33 per cent. is in the metallic state, and the remainder in combination with organic matter, forming a soluble salt. The particles of iron are evidently iron filings.”

Croup treated by Nitrate of Silver, &c.—Dr. HOMANS reported two cases of true croup, treated mainly by the above application. In evening of November 23, 1853, was called to see a boy 3½ years of age, who, after being hoarse for a day or two, had become suddenly worse. Found his skin somewhat hot, respiration rather laboured, dry cough, with the harsh peculiar

sound belonging to croup; pulse accelerated, and hard. Ordered an emetic of ipecac. and calomel, and cloths, wet in hot water, to be applied about the throat.

24th. Was called early in morning; patient had passed a restless night; symptoms were all aggravated. On examining throat, found tonsils covered with lymph; examination of chest discovered nothing abnormal in that cavity. Introduced into larynx a sponge charged with nitrate of silver in solution, 40 grs. to the ounce of water; ordered 1 gr. of Dover's powder to be given every four hours, with $\frac{1}{2}$ gr. of calomel, to be discontinued after the bowels should have been opened, and one grain of Dover's powder to be given instead; also ordered water, in which mullen was steeping, to be evaporated in two vessels in the chamber, and at intervals to be placed in such a situation that the patient might inhale the vapour. In evening, respiration seemed less laboured, and patient looked more comfortable.

25th. Bowels open in night; patient was quite easy in evening, but had a very restless night. Respiration at present, perhaps, more laboured than at any time since commencement of attack; other symptoms as yesterday. Sponge again introduced into larynx, and on its withdrawal several shreds of lymph were observed upon it. Patient complained of some soreness in throat after this, which in a short time subsided. Continued in much the same state during the day, articulating only in a whisper; cough for the most part dry and harsh, though with some slight efforts at expectoration.

26th. Has passed a better night; slept, perhaps three hours in all, and when awake, less restless; respiration, however, quite laboured at times. Nitrate of silver again introduced into larynx in same manner as before, after which he coughed violently, and raised quite a large portion of membrane. Through the day, cough was less harsh; at times loose, with some expectoration. In evening, more comfortable in every respect; has taken only $\frac{1}{2}$ gr. of Dover's powder every four hours.

27th. Had a much better night; slept more, coughed oftener, and raised more easily shreds of lymph and thick mucus. The air in the chamber had been constantly rendered moist with the vapour of water as at first directed. From this time, improvement gradually advanced, and on the 30th inst., a week from the commencement of the attack, he began to use his voice, though not always able to do so. He is now in good health.

It may be remarked, that two children of this family had been victims to croup a few years since, one 20 months old, in thirty-six hours from first moment of attack; the other, 5 years old, after an illness of four days.

CASE II. December 6, 1853.—Was called to see a lad, 6 $\frac{1}{2}$ years old, residing in Milton, in consultation with Dr. C. C. HOLMES. The boy had had a slight eruption resembling scarlatina a fortnight previous, which did not, however, prevent him from attending school. For the last two days his appetite has been small, and for twenty-four hours past he has been exceedingly restless, hot, complaining of his throat, one side of which was swollen externally. In the night, his respiration became so difficult, that Dr. Holmes was summoned, who administered an emetic, and made external applications to the throat; after this, for a time, he was more easy, but two or three hours having elapsed, dyspnoea greatly increased, the symptoms becoming so alarming as to induce Dr. H. to state his apprehensions to the parents, and to request a consultation. At noon, I saw him; his countenance was livid, his respiration laborious, accompanied with motion of the head at every inspiration, his voice a whisper, extremities cool, and his appearance indicated a speedy and fatal termination. In consultation, it was agreed to inject into

the larynx a teaspoonful of a solution of nitrate of silver, grs. xl. to $\frac{3}{4}$ j. of water; and to repeat this in the evening, should the bad symptoms continue, giving also 1 grain of Dover's powder once in three or four hours, as might be needed to quiet him. The operation was done with a gold syringe, having a long curved beak, it being the first time I had seen it performed. I therefore had some solicitude as to the effect of injecting a liquid of this character into the respiratory passages, so sensitive to the accidental admission of even a drop of water in ordinary circumstances. The operation was easily done, but the dyspnœa was for a moment distressing—soon, however, subsiding—after which the child, with much relief, expectorated a considerable quantity of thick tenacious mucus, with perhaps some shreddy lymph. By evening, symptoms were so much abated as to render a second injection unnecessary. From this time, respiration and voice gradually returned to their normal condition, with occasional attacks of dyspnœa and free expectoration, until health was slowly restored.

At the meeting of the Society, February 13, 1854, Dr. HOMANS reported another case, which was treated in a similar manner; the disease was complicated with scarlatina.

CASE III. January 8, 1854.—A young girl, 9 years old, who the day before had complained of chills, headache, and sore throat, awoke her attendant in the night by a loud, harsh cough; this recurred at intervals, accompanied by dyspnœa, until morning, when Dr. H. was called. She had been unable to speak loud yesterday, and was thought merely to have a cold, for which the usual remedies, such as bathing the feet in hot water, &c. were used on going to bed. Now, speaks only in a whisper—is very restless; feels sleepy, but cannot sleep; pulse 90; skin rather hotter than natural; respiration laboured, attended with a whistling noise, audible all over the room; complains of sore throat, and is thirsty. On examination, there was found ulceration on tonsils, with lymph. A sponge was then introduced into the larynx, charged with a solution of nitrate of silver, grs. lx. to $\frac{3}{4}$ j. of water. Dover's powder, grs. ij, was given, with directions to repeat in four hours if restlessness continued; the air in the chamber was made moist, as in Case I., and the temperature kept as near 70° as possible.

9th. Some relief was experienced after application of yesterday, but at night all the bad symptoms returned, and continue at present; a slight eruption of scarlatina is now to be seen on the face and body; pulse 130, skin hot; thirst, headache. Dover's powder was directed in doses of gr. i, instead of ij, as yesterday. The sponge was again introduced into the larynx, and in the course of the day and night, some shreds of lymph were thrown up. The relief, after this application, was greater than after that of yesterday.

10th. Night more quiet, respiration less laboured; some disposition to cough and expectoration. Sponge not again introduced.

11th. A tolerably good night; symptoms of croup diminishing; scarlet eruption fully developed, covering the head, body, and extremities; is as yet unable to articulate aloud; expectorates with some effort.

12th. Improving; from this time the symptoms of croup ceased to be alarming. The scarlatina proceeded in its course, and she is now convalescent, Jan. 31, 1854.

Dr. H. remarked, in addition, that his ideas of the proper treatment of croup had been greatly modified of late; he is opposed to the often over-violent medicinal action by emetics, &c. used in such cases, irrespective, too frequently, of the condition of the child, and of its natural constitutional force; nature is, by these means, in very many instances disabled, and cannot

throw off the disease by reason of *induced debility*, added to the shock and depression caused by the attack; with this view, appropriate and efficient local measures, aided by a proper maintenance of the patient's strength, offer the most reasonable and likely chances of success.

Dr. STORER asked if the complication of scarlatina with the croup in Dr. Homans's case might not have had a favourably modifying action?

Dr. HOMANS thought it reasonable to suppose this so; he mentioned, incidentally, that there were six cases of scarlet fever in the family, of which the patient with croup was one.

Disease about the Testicle.—The specimen, with a history of the case, was sent by Dr. JAMES DEANE, of Greenfield, to Dr. B. S. SHAW, of Boston, and by Dr. S. to the Society:—

The organ is surrounded and closely invested by a thick, dense, fibro-cellular substance, such as is sometimes seen about the lung in cases of old pleurisy; the thickness varying from one-half of an inch to an inch or more. In the thickest part of this substance was a perfectly defined, rounded abscess, of the size of a large nutmeg, coated thickly upon the inner surface with recent lymph, and filled with viscid, greenish pus. The testicle itself was perfectly healthy in structure and of natural size, so far as appeared on a single incision through the mass.

The patient was a young man, twenty years of age, and was first seen by Dr. D. on the 12th of last October, when, he says in his note, "I judged his case to be simply hydrocele: I was informed, however, that the testicle was supposed to be diseased, and that the hydrocele was secondary, which was doubtless the fact. I withdrew about a pint of serum, and advised an attempt at a radical cure, and for this object adopted the iodine process, which failed. When the water was discharged, I was surprised to find the testicle in such a state of engorgement, and learned that it had been gradually increasing in size for two years, and that he had suffered greatly from pain, from a sense of weight, and from mental depression, so as to be disqualified from his usual pursuits. In fact, he, as well as his friends, was averse to the plan of radical cure, and wished for extirpation of the tumour."

"November 12, he came to me still anxious for extirpation, but I once more dissuaded him, and passed a seton through the cyst, which produced entire adhesion of its walls; still, the inflammation went on, and ended in slight suppuration, and on the 6th of December the testicle was removed."

In regard to the diagnosis in this case, Dr. D. says: "It appeared to me the disease was essentially some inflammatory condition of the testicle and its investments. I did not suppose there was any cancerous taint, but rather, that it was a strumous engorgement of the testicle, and that it would end in chronic suppuration and destruction of the gland. This opinion, it seems, was incorrect; and yet, under the circumstances of the case, I do not doubt the propriety of the course I adopted."

The subsidence of the enlargement of the testicle under the development about it of a thick fibro-cellular mass, was remarked upon, when the specimen was shown, as an interesting pathological fact, and as bearing upon the treatment of such engorgements by external pressure. The formation of such an abscess, and in such a structure also, is what no one would have anticipated; and it is not surprising that the case should have been regarded, to the last, as one of enlargement of the organ itself.

Encysted Kidneys.—The specimens were sent by Dr. E. LEIGH, of Towns-

end (who attended the dissection), and show the disease very finely. One of them is entire, and is much enlarged, measuring twelve inches in length, and weighing twenty-six ounces; it seems to be a complete transformation, and the cysts, as usual, vary in size and contain a thin fluid more or less colored. The other organ, which is about as large as the first, has been cut through longitudinally; and, besides the serous cysts, there are exposed several large cavities, which are nearly filled with a white substance of the consistence of soft putty, and much resembling the material found occasionally in the kidneys as well as in other parts, as the result of tubercular disease. This material, having been analyzed by Dr. JOHN BACON, Jr., is found to be wholly organic; containing pus-globules, epithelium-cells, much fatty matter, and, Dr. B. thinks, tubercular corpuscles. The ureter of this second kidney is obliterated near its origin.

The patient had been sick since last March, and he was thought to have had "liver complaint;" the kidneys having never been suspected. Had had vomiting, sometimes light-coloured discharges; was said to be occasionally jaundiced, and gradually lost his strength.

The urine (a few ounces taken from the bladder thirty hours after death), having been sent by Dr. L. with the kidneys, has been analyzed by Dr. Bacon, who describes it as follows: "Turbid; faintly acid; density 1.018. The proportion of urea is very small; and as the urine has not become ammoniacal by standing, but little urea can have been destroyed by spontaneous decomposition. A moderately large amount of albumen is found in the urine."

December 26. Vaccinia and Varicella coexistent.—The following case was reported by Dr. STORER as having some bearing upon the question of the identity of vaccinia and variola:—

A fortnight since, he vaccinated a child six years of age. Calling, a few days after, to ascertain if the matter had been absorbed, he found his patient covered with the eruption of chicken-pox. Visiting it again to-day with the view of revaccination, the vaccine vesicle was observed to be pursuing its regular course.

Dr. J. B. S. JACKSON mentioned the case of a patient in whom vaccination did not take effect for three weeks; the mother of the patient was capable of judging of the appearance of the vaccine pustule; the occurrence is surely a rare one.

Single Congenital Cataract.—Dr. WILLIAMS mentioned two cases of congenital cataract, in which he had recently operated, as having some interest in connection with the case of single congenital cataract reported by Dr. Bethune at a previous meeting. The first patient was a young lady from New Brunswick, who was affected from birth with cataract in the right eye. Vision in the other eye was perfect till she was eight years of age, at which time cataract made its appearance in this eye.

An operation had been performed on the left eye, some years since, in New Brunswick, but the opaque capsule still covered the pupil, with the exception of a mere pinhole. Dr. W. extracted the capsule from this eye through the cornea, and at the same time divided the lens and capsule in the right eye. Absorption of the right lens went on rapidly, and with suitable glasses, perfect vision was enjoyed in both eyes.

The brother of the patient, æt. twenty years, has been affected from birth

with cataract in both eyes; and within two years, her mother has become affected with double cataract.

The second case was an infant four weeks old, whose right eye was operated on a few days since. The pupil of the left eye is apparently clear. But it is not improbable that a cataract will eventually show itself in this eye also.

January 23, 1854. As the lens was not entirely absorbed subsequent to the former operation, the infant above named was operated on a second time on the 21st inst., sulphuric ether having been previously administered. The instrument was introduced through the cornea, and the relics of the lens and capsule completely divided. Neither operation was followed by more than a very slight and transient injection of the eye.

January 9, 1854.—Fracture of the upper part of the Shaft and Neck of the Os Femoris in a Lady aged eighty-six. Dr. J. MASON WARREN.—This patient, about a week before her death, fell in her room, striking on the trochanter of the right thigh-bone. She was unable to rise, and was taken up and placed in bed. On examination, it was found that the right lower extremity was shortened about an inch and the foot everted. The thigh was much swollen. No crepitus could be discovered on any motion given to the limb. She was placed on her back, the limb supported on a double-inclined plane made of pillows. She complained of but little pain in the injured part. For a few days she did well. The bowels then became constipated, the pulse failed gradually, and she died on the sixth day from the reception of the injury, apparently from the shock to the system, reduced by age. On a *post-mortem* examination, before the injured parts were exposed, an attempt was made to get crepitus, but none was produced by the ordinary motions of the limb. By extreme flexion, however, using at the same time powerful rotation, a crepitus could be distinguished. On making an incision over the trochanter down the thigh, the fat and muscles were found filled with extravasated blood. There was a comminuted fracture of the shaft of the bone just below the trochanter, and another fracture extending upwards from this into the outer edge of the socket, separating the neck of the bone from the trochanter. But little blood was effused into the cavity of the joint.

The case was interesting as showing how extensive the fracture may be, and yet, from the extravasation of blood and from other causes, one of the principal diagnostic signs, crepitus, could not be obtained.

Malformed Heart; Interventricular Opening.—The patient was twenty years of age, and had been under the care of Dr. CABOT for the last three years. He was of a slender figure, though not particularly small or stunted, as is said to be often the case; very susceptible to cold, and had had marked cardiac symptoms from infancy. The lividity of the face and hands was always more or less noticeable, and, on any considerable exertion, it was deep, so as to attract attention in the street. Dyspnoea often so urgent that he would be obliged, when walking, to stop and support himself; action of heart strong, and accompanied by a loud sawing, rather than bellows, sound; pulse regular, bounding, and moderately frequent. About three years ago he had active hemoptysis, and from that time his general health decidedly improved, and his dyspnoea so far diminished as to be no longer noticeable; he could split wood and walk six or eight miles without fatigue. On the 6th of December, he raised, by estimate, about a quart of blood, having been as well as usual up to that time; on the 9th, he raised about as much more, and again on the 24th to the 25th; under this he sank, and died on the 29th. Under

this attack of hemorrhage, his dyspnœa increased, and also a hacking cough, to attacks of which latter he had always been subject; there was also much fever. At the age of four or five years this patient had scarlet fever very severely, and at the age of ten, measles; he also had disease of the spine, producing a very marked backward curvature.

The heart, on examination, was found to be of about the usual size, and the opening between the two ventricles sufficiently large to allow the tips of two fingers to pass through. Left ventricle not at all thickened; but the right, as usual, very much so. The pulmonary artery has two well-developed valves; and the passage to it, from the right ventricle, to the extent of half an inch or more from the free edge of the valves, is so much contracted that the tip of the little finger would not pass. Some abnormal formation has been generally noticed at this part in cases of interventricular opening, and in all that have been observed here, it has been so without exception. There is a direct opening of the foramen ovale to the extent of about four lines, and a small band traverses it, as if to prevent its further enlargement. Almost the whole of the left lung was consolidated by a form of disease that seemed intermediate between pneumonia and a tubercular affection; being most advanced towards the base; in the upper right lobe there was tubercular disease and a small cavity.

Rupture of the Bladder.—Specimen shown and case reported by Dr. CABOT. The patient was an Irishman, 18 years of age, and was brought to the Hospital at 7 P. M., on the 26th inst. At 11 P. M. on the 24th, he had fallen down stairs, whilst intoxicated, and from that time had passed no urine. The abdomen was tumefied, and quite painful; the pulse 120, and feeble; he sank gradually, and died twenty-three hours after his admission—the pain continuing to the last. A catheter was used several times, and on making pressure over the bladder, considerable quantities of urine, colored by blood, were passed; the catheter probably entered the cavity of the abdomen; some blood also followed the use of an elastic catheter.

On dissection, the bladder was found much contracted, and lacerated at the fundus, sufficiently to allow the finger to pass through; the mucous and muscular coats being everted, as in the case of a lacerated intestine, so as to remind one very strikingly of an over-ripe, purple fig. Peritonitis existed, and the cavity of the abdomen contained about five ounces of a turbid, urinous fluid. Some coagulated blood was also found in the cavity of the pelvis, about the bladder.

Malignant Disease of the Rectum, from a Boy twelve years old.—Specimen sent by Dr. J. P. C. CUMMINGS, of Leicester, with the following history of the case:—

"The patient was of a somewhat nervous temperament, but had no appearance of cachexia. The first appearance of any disorder was about the 25th of last September, when he had an attack of acute dysentery, since which he has complained of pain seated in the rectum, and has had frequent small discharges—sometimes as many as twenty per diem. About the first of December, he complained of great tenesmus and complete inability to evacuate the bowels. After using cathartics for some three days without success, I made an examination per anum, and ascertained the existence of the disease. I was able to reach it, and insert the tip of the finger about half an inch, but could reach no higher; all attempts to pass even a small bougie were entirely unavailing.

"After five weeks of constant suffering, the patient died on the 6th inst. Of course there was enormous fecal accumulation, but no morbid appearances except at this point, with a very considerable amount of peritoneal inflammation."

This disease is sufficiently defined, and involves the entire circumference of the intestine, more or less, to the extent of about two inches. In regard to density, thickening, and the character of the ulceration, which was quite extensive, it resembles at first sight, and perfectly, any ordinary case of scirrhouss rectum. On further inspection, however, there is seen to be a considerable amount of colloid deposit, some of it comparatively firm, but in other parts quite soft; and a pearly, granulated appearance upon the peritoneal surface resembles strikingly what is seen in a specimen in the Society's cabinet of purely colloid disease of the stomach.

The age of the subject was certainly most remarkable for any other form of cancer than encephaloid, of which there were no traces in the present case; the duration of the disease, also, was short, and the circumstances under which it occurred were curious.

Primary Encephaloid Disease of the Lymphatic Glands of the Abdomen.—Specimen sent by Dr. THOS. H. GAGE, of Sterling, with a full history of the case. The patient was 56 years of age, and quite healthy until about eighteen months ago, since which time there has been a general decline, but without any symptoms that would lead to a satisfactory localization of the disease. There was languor, a general feeling of discomfort, depression of spirits, and an anemic, sallow, lemon-coloured complexion. Complained that he got no nourishment from his food, though his appetite remained good; also complained of a dull, heavy pain in the lumbar region. Since November, he has been under the care of Drs. Kendall and Gage, of Sterling; and has been mostly confined to his house, with an increase of the above symptoms. After a time, there came on severe pain in the left hypochondrium, which, as he said, "shot around to the back," and prevented him entirely from lying upon that side. The abdomen became quite tumid and tense, though not painful; bowels costive; digestion much impaired, with subsequent loss of appetite and loathing of food; and towards the last, vomiting of almost all food, with frequent eructations and hiccough. The mother of the patient had died of cancer of the breast; and from all appearances in his own case, it was strongly suspected that cancerous disease existed somewhere in the abdomen.

The lumbar glands in connection with the aorta and vena cava, and the glands about the pancreas and duodenum, were much enlarged, and consisted of soft encephaloid—all of the organs of the thorax and abdomen were examined by Dr. G., and were found perfectly healthy.

Primary cancer of the lymphatic glands has been noticed here in two if not three cases; and Lebert refers to twelve that have fallen under his own observation, remarking that there was only one in which the abdominal glands were the seat of the disease.

At a subsequent meeting, a case was reported by Dr. Cotting, of encephaloid disease of the glands just above the left clavicle. The cellular membrane in front of the neck was indurated, and the disease extended downwards into the thorax, so that dysphagia and dyspnoea were marked and distressing symptoms. The costal pleura was granulated, as it so often is in cancer; and there was found with it, as usual, a large serous effusion. The organs themselves, however, were quite free from cancer. The patient was 58 years of age, had been dyspeptic, and generally an invalid for ten years, but dated his last sickness only from September.

Spinal Meningitis and Latent Pleuritic Effusion.—Case reported by Dr. BOWDITCH. A Portuguese sailor, æt. 19, entered the Massachusetts General Hospital December 3, 1851, with symptoms of fever, as follows:—

Six days before, he had been attacked with pain in the head and abdomen, anorexia, thirst, and diarrhoea; occasional slight cough; heat of skin; great prostration. At his entrance he had the above symptoms, with one or two frothy adhesive sputa, but he had no pain in the chest; his skin was very hot and dry; pulse 120; his tongue was thickly coated and dry; abdomen full, tympanitic and painful on pressure; urine scanty, dark.

A Dover's powder was ordered by the house pupil, at night. On the next day, Dr. B. saw him, and found that the night had been restless; the abdomen was most tender in the coecal region; his head "felt badly," but his mind was clear. Auscultation and percussion of both backs gave normal results. Sulph. quinia grs. ii. every two hours; and if at any time there was much fever, he was to have spts. ether. nitros. gts. xxx. Continue Dover's powder and repeat, if needed.

During his residence at the Hospital, until the day of his death, twenty-eight days from his attack, he was as follows: All the symptoms improved for the first forty-eight hours; his pulse fell to 88; his skin became soft and moist; his tongue was natural, and the abdomen lost its tenseness; he still complained of no thoracic symptom. After forty-eight hours, the quinia was omitted, and during the four subsequent days he was, at first, violently delirious, but was relieved immediately on the application of leeches. He however complained of some pain in the head, and had some epistaxis. The pulse and all the other symptoms improved; so that, on the 4th, he was rational, and felt merely weak. During this period he had the common fever-mixture, viz: 3*i.* of equal parts of chloric ether, nitrous ether, and liq. acet. of ammonia.

The next phase of the disease commenced with partial paralysis, and great unwillingness to move his legs. They fell, when lifted, and with great pain to the patient, who was very irritable, and unwilling to speak or move; but rational in his answers. Finally, he had great and constant pain in the lumbar vertebræ, and tenderness there, with double vision and slight strabismus. In every other function, save in the urinary secretion, which continued dark and red, with a heavy deposit of urates, he seemed doing well. No thoracic symptom was noticed by himself or others. During this period, Dr. B. blistered the spine very freely, and gave calomel in alterative doses.

The fourth and last phase was ushered in by violent convulsions, with frothing at the mouth, opisthotonus, on five separate occasions, with singing and screaming in the intervals; total blindness and great strabismus. These symptoms decreased in forty-eight hours, and he became rational, quiet, and, three days before his death, appeared better than for a fortnight previous; but the legs always remained as described. He soon, however, rejected all food; a low, muttering delirium, with picking at the bedclothes came on, and he died December 25th. The mercurials were continued during this period, and a slight ptyalism appeared four days before death.

At the autopsy, the pia mater of the brain and of the spinal marrow was more corrugated than usual, and a little more subarachnoid fluid was noticed over the cerebrum; no pus or lymph anywhere; 3*iss* of fluid in the lateral ventricles. Substance of brain natural in consistence, but numerous red points in it. The convolutions were flattened. The spinal marrow at its upper and posterior part, where it joins the medulla oblongata, presented, on incision, a very manifest brownish hue, similar to the colour usually seen around apoplec-

tic masses in the cerebrum. There was, however, no real extravasation, and the part was about as firm as the adjacent portions, though very different in colour. Over this spot, the dura mater was much thicker than on the parts below. In the middle of the spinal marrow, there was a part, an inch and a half long, which was pale, and quite diffused, almost cream-like. The right lung was congested; the left was partially compressed by twenty ounces of saffron-coloured fluid; it was firmly adherent to the ribs at its back part, and covered with thick lymph elsewhere. It had a dense structure, but no tubercles in either lung. The bronchi of the left lung were visibly injected.

Nothing peculiar was noticed about the alimentary canal, except that the patches of Peyer were unusually distinct and reticulated, but otherwise normal. The spleen was large. Other organs healthy.

Dr. Bowditch thought that there were several points of interest in the case: 1. The sudden diminution of the pulse, and of all the symptoms of fever under the quinia. 2. The peculiar paralysis of the legs, combined with great sensitiveness to motion, opisthotonus, &c., taken in connection with the condition of the meninges and of the spinal marrow, brought this case into the category of cases of spinal meningitis. 3. The totally latent effusion into the pleura was important, and the question was suggested to his mind whether, if it had been discovered, and means used for its absorption or removal, the patient might not have recovered.

January 23, 1854. Proportion of Fat in a Fatty Liver.—Dr. JOHN BACON, Jr., read the following account:—

The specimen examined was received from Dr. J. B. S. JACKSON, and was part of a liver which weighed ten pounds, from an adult subject, very intemperate.

From 750 grains of the liver, 398.5 grains of fat were obtained, equivalent to 53.13 per cent. The whole liver consequently contained about five pounds five ounces of fat.

The fat is solid at the ordinary temperature of the atmosphere, but at about 98° F. melts into a nearly transparent oil, which becomes quite clear at 110°, and remaining fluid on cooling until its temperature falls to 70° F. In the living body it would, of course, be in a fluid state.

Stearin, margarin, and olein, the constituents of normal fat, are found in it, and a little cholesterin is probably present.

The only analysis I have seen of fatty livers, in which the proportion of fat is stated, are by Frerich and Boudet. Frerich found 17.26 per cent. of fat; Boudet found 31.53 per cent. in a fatty liver, and 1.77 per cent. in a healthy liver.

Dr. JACKSON referred to the entire absence of any tubercular disease in the patient from whom the specimen was taken.

Malformed Heart.—The specimen was sent by Dr. LEIGH, of Townsend, and was taken from a child that lived about twelve hours. Respiration was established with great difficulty, and continued to be difficult, being attended with a slight groan at each expiration. The organ is of full size, and consists of but one auricle and one ventricle, between which two cavities is a well-developed valve. A vessel, about the size of the aorta, arises from the ventricle, and soon gives off two branches that go to the lungs; the vessels at the arch are then given off; no coronary arteries.

Foot Torn Off by a Cable on Shipboard.—Dr. CABOT reported this case. The subject of the accident was mate of a vessel which was being towed to

sea by a steamer; his foot was caught by the bight of a small hawser, and he was drawn up to the hawse-hole, and the foot completely removed at the metatarsal articulation. There was no bleeding. The man was brought to the Massachusetts General Hospital (the accident having occurred just outside Boston Light), and Dr. C. subsequently amputated a short distance above the malleoli.

Ichthyosis in an Infant; Hemorrhage from Umbilicus; Death.—Reported by Dr. GOULD. Male child of C. S. L., born Oct. 26, 1853, after a comfortable and normal labour, under the use of sulph. ether during the last three hours; weighed nine pounds. The skin was harsh, and appeared as if thickly incrusted with spicula, or fine sand; which, however, was not the case. After washing, the head was found nearly destitute of hair, there being only a fine down, and little tufts or pencils, consisting of a few hairs, half an inch in length, closely twisted, and at distances of perhaps an inch from each other; over the eyebrows the skin seemed raised into rigid points, of a pearly white colour; the face and lips were nearly natural; but elsewhere, the skin, on drying, became like tissue paper, loosely attached to the cellular tissue beneath, and presenting marks wherever folded, like paper; on the back and some other parts the surface had a granular appearance. After a few days the skin became more supple, and considerable exfoliation took place. It accorded well with that form of ichthyosis called by Alibert *ichthyose nacrée*. The first child of these parents, a female, weighing five and a half pounds, was affected in a similar manner, though much more severely, the skin being very rough, and breaking into bleeding fissures. It lived sixteen days, and died hydrocephalic.

In the present case, the first alvine discharges were colorless, and none with the usual appearances ever occurred. The child began at once to nurse, and fed plentifully. The discharges from the bowels were also numerous and copious, seven to ten daily, having at first a putty-like consistence, with a peculiar odour, and afterwards becoming thinner, less offensive, and after the use of hydrarg. cum creta, of a straw-yellow colour. Most of the ingesta were evidently discharged without being much altered. The skin very soon became jaundiced; and the urine, at first limpid, became amber-coloured.

The cord separated on the fifth day; on the ninth day, oozing of blood was discovered at umbilicus; lint, saturated with tannin, was applied, under a compress, and no blood flowed for fifteen hours; it then flowed rapidly, and by report of nurse, in a thread-like jet. Nitrate of silver was applied, and the bleeding ceased for five hours. The extremity of the cord was then drawn out, and a ligature applied to a portion of it, with a partial check to the hemorrhage. In a few hours, however, it recurred; alum, collodion, pressure, and various other means were employed without success. The bleeding became more profuse, and the child died Nov. 6, on the third day after the hemorrhage commenced. A slight exudation of blood occurred at the anus, though no appearances of blood showed themselves in the evacuations. Ecchymoses were not noticed anywhere; the peculiar state of the skin would not have shown them.

The umbilical vessels were all found pervious. The liver was very dark coloured, friable, gorged with blood; gall-bladder flaccid, containing about a drachm of clear fluid, much like synovial fluid, in which a few flocculi floated. On careful examination, the cystic and common ducts appeared to be impervious.

Hydrophobia.—Dr. CABOT reported the case. The patient, a healthy-looking girl, of seven years, was bitten by a dog, supposed to be rabid, at 8 o'clock A. M. of Dec. 18, 1853; she was brought to the Massachusetts General Hospital at 5 o'clock P. M. of the same day. Three lacerated wounds were found near the left elbow, made by the teeth of the dog, also one on the palm of the left hand near the thumb, and one on the cheek. There were, likewise, several slight abrasions of the cuticle on the cheek and left arm. The wounds were thoroughly cauterized with the nitrate of silver; a bath, containing carbonate of potass, given; and a poultice applied.

Dec. 19. The patient, on the morning of this day, was fully etherized, and the edges of the wound cut away by Dr. Cabot; strong nitric acid being subsequently applied to the wound; a poultice, wet with black-wash, applied.

21st. Swelling of face diminished; poultice continued; no pain; house diet ordered.

23d. Slough separating; swelling of face entirely gone; bowels regular.

29th. No untoward symptoms; sloughs separated; wounds granulating well.

Jan. 5, 1854. Wounds of face and palm of hand entirely healed; wound on arm nearly healed. All functions well performed.

13th. Discharged, well.

The little patient was readmitted to the Hospital on the 20th, and the following history is condensed from the Hospital Records, as read to the Society by Dr. CABOT: Since leaving the Hospital (Jan. 13) she has been unusually timid, and this has been manifested especially in the night time; she is afraid to sleep alone, or in a dark room, which was never the case prior to the injury received. She has been restless during most of the nights, and bad dreams have troubled her; appetite, especially for meat, has been better than usual. The first convulsive shuddering was observed this morning at breakfast time. While drinking at breakfast, she dropped her tumbler, and soon complained of inability to swallow. From that time to the present there have been paroxysms more or less frequently, lasting from thirty seconds to a minute, and resembling the catching of the breath experienced at the shock of a shower-bath, although more violent in character; a slight current of air induces these paroxysms, and so does a ray of light suddenly striking her eyes; and the sound of pouring liquids has the same effect; even the mention of these things will sometimes cause an access of convulsive action. She will carry a teaspoonful of water to her mouth, and suddenly drop it, saying she cannot swallow it. She is afraid of all who approach her, thinking they will hurt her; she fears a repetition of cauterization to her wounds; the cicatrices of these latter are, perhaps, somewhat redder than they were a week since; there has been no uneasy sensation in them; some nausea during last twenty-four hours. Apply a blister of cerate of cantharides, four by one and a third inches, over lower cervical and upper dorsal vertebrae; also compresses, wet with a solution of capsicum 3j. in alcohol Oj, over the legs, from the knees to the ankles. The pulse, at entrance, 108; in a space of two minutes only, it would vary ten beats; very perceptibly intermittent.

21st. Patient very restless during last night; slept but little; unable to take a Dover's powder, from inability to swallow; exceedingly timid; has cried several times, from fear.

11 A. M. She ate a small piece of ice.

4 P. M. Swallowed some water, which was given to her with a spoon; pulse not to be counted by reason of its rapidity.

7 P. M. Exceedingly restless; impossible to keep her in bed; complains

greatly of "soreness in stomach;" says "that she shall die to-night, as there is so much *vinegar* in her stomach;" spits a great deal; expectorated matter somewhat brownish in colour; is distressed at the sound of any one's coughing, saying that it makes her feel faint; asks to have her pulse counted, saying that she will not live long; tongue red.

8 P. M. Dr. J. M. Warren saw the patient at the Hospital, in consultation with Dr. Cabot; she was then affected with almost indescribable jactitation; a condition which might convey the idea of a person being between insanity and a state of intense fear; crying out frequently; constantly begging for help; frequently spitting out, with effort, tenacious saliva in small quantities, with an occasional spasmodic action of the diaphragm, causing a sound between a cough and hiccup, somewhat resembling the bark of a dog; in one of these efforts, she vomited about two ounces of a dark brown, grumous fluid.

9 P. M. Convulsive action increasing in severity and frequency; skin dry; tongue red; unable to number the pulse-beats. The patient was now etherized and half a drop of dilute hydrocyanic acid given to her; her pulse fell (when she was fully etherized) to 140, and became fuller.

11 P. M. The hydrocyanic acid was repeated; etherization continued.

12 (midnight). She was breathing quite freely and easily under the influence of the ether, constantly administered; pulse very slightly accelerated, and of sufficient strength. Etherization still maintained, having been nearly uninterrupted since 9 o'clock of the evening. The respiration, soon after midnight, became laboured and slightly stertorous; ether discontinued; in a few minutes, breathing natural. Shortly after this the pulse began to diminish gradually in frequency, until scarcely perceptible at the wrist; pulsations of temporal artery continuing distinctly; stimulants were given, and friction used for fifteen minutes, but unsuccessfully, death ensuing about ten minutes before 1 o'clock of the morning of the 22d.

22d. *Post-mortem Appearances.*—The examination was made ten hours after death.

Brain.—Rather livid in aspect; odour of ether strongly perceived from it; the entire gray portion very dark in colour; nothing else of note observed; the same dark hue in the gray substance of the medulla oblongata.

Lungs and Heart.—Perfectly healthy.

Stomach.—Contained about $\frac{3}{4}$ of a pint of a greenish-brown grumous fluid; otherwise healthy, but pale in colour.

Esophagus, liver, spleen, and kidneys, healthy.

Spinal cord, so far as examined, healthy.

By a written statement from her father to Dr. Cabot, it appears that the sight or thought of water and fluids did not affect her except she attempted to drink, or when water was applied to her face; she could not bear the application of even a moistened cloth to her face; water applied to the hands and feet produced no disagreeable sensations or effects; a current of cool air, the transition from the warm air within the railway car to the external atmosphere, even the breath puffed upon her face ever so gently, caused her to start, shiver, and catch her breath. A veil over her face produced the same sort of sensation as water, &c., only less severe; obliged to have it removed; the smoke and steam of the railway engine also produced nearly similar effects. During her stay at home, after her first residence at the Hospital, although often restless, she is reported to have slept quietly much of the time, and this was true of the night previous to the access of the convulsive shuddering; her appetite was good, and her bowels were regular. During the day of her second coming to the Hospital, she was noticed to gape frequently; and with

a very strong desire to sneeze, said she could not; some nausea existed, and once she vomited, but no great quantity. It is also stated that, previous to the bite of the dog, she had not been a remarkably nervous child, and that she was quite courageous, having much fortitude for one so young. Her friends avoided all conversation on the subjects of rabies and hydrophobia; it was thought, however, that she might have gained some notion of the probable results of a bite from a rabid dog; several times, on retiring to rest at night, she said, "it seemed as if there were a dog under the bed," &c.; this, of course, might well enough arise from remembrance of the dog's attack.

To an inquiry whether *tracheotomy* had been contemplated, Dr. Cabot replied that he went prepared to do the operation, but at no time were there symptoms on the part of the larynx and trachea of sufficient urgency to demand such action.

In allusion to this case, Dr. BETHUNE asked whether the use of ether might not have had an influence in the production of certain of the cerebral manifestations and appearances?

Dr. Cabot stated that the ether was not chargeable with any of the bad results of the case.

Dr. C. E. WARE inquired if there were any well-authenticated instances of recovery from the bite of a rabid animal? He referred to a case of which he had heard of a man now living and employed at the Custom-House, who was, some years ago, bitten by a dog supposed to be rabid.

Dr. PERRY mentioned having seen at the School for Idiots, at Albany, N. Y., a girl who was bitten by a rabid cat, and who afterwards exhibited many of the usual symptoms observed in such cases. When seen by Dr. P., she was nine years old; the bite was inflicted at the age of four years. Previous to the injury she had been quite as bright and intelligent as children in general, but after it she gradually became idiotic.

Dr. J. B. S. JACKSON referred to research made by Dr. O. W. HOLMES in various journals, for cases recorded as having occurred in this country. None esteemed genuine were found up to the report of a case by Dr. COALE, of this city (see this *Journal* for 1849, p. 30). Dr. J. added that Dr. BOWDITCH had examined, with similar intent and result, the Records of the Massachusetts Medical Society. The case of hydrophobia, which occurred in the town of Lincoln, Mass., in 1820, was mentioned by Dr. J.; the animal which wounded the person was a raccoon.

Dr. PARKS, from a knowledge of the town, its history, and many of its residents, was inclined to believe the case referred to a genuine one; he had frequently heard it spoken about.

Dr. THAYER, of Montpelier, Vermont, who was present at the meeting, stated to the Society that *he himself* was bitten, at the age of nine years, by a rabid dog; his father, who was a physician, incised the wound deeply, and on the instant, and thoroughly sucked it; the naked hand was the part bitten; no symptoms of hydrophobia were ever manifested. The same dog bit an ox and a hog, and both these died from the effects of the bite; the ox in three weeks, the hog sooner. [Dr. T. subsequently mentioned, in conversation with Dr. J. B. S. Jackson, certain facts which are of undoubted significance, viz. that his father never spoke of the great danger to be feared from the accident to any one at the time of its occurrence; nor was Dr. T. himself made aware of the excessive peril he had been in, until years had passed, and he was a student of medicine. It is certainly not unlikely that the result might have been far different, had great terror and nervous excitement been aroused in the patient at the time of the accident. The absence

of apprehension on the part of persons bitten, must be considered of great importance as a curative element; unfortunately, instances in which it does, or can exist, are, of necessity, exceedingly rare; the knowledge of the awful tendency of such wounds being so universally diffused, and the alarm usually manifested by friends being almost unavoidably more or less evident to, and consequently effective upon, even children.—SECRETARY.]

Dr. Cabot added to his statement of the case, that, by his direction, several of the dogs bitten by the rabid one in question, were kept alive, and have not manifested, thus far, any signs of rabies. A man, bitten by the same dog half an hour after the little girl was wounded, and who came to the Hospital and received the same treatment, has to this time escaped the disease. The dog who inflicted the injuries was sent to Boston and examined; his stomach and the portion of œsophagus examined, were found quite healthy in appearance. The stomach was *entirely empty*, contrary to Mr. Youatt's statement, that it is always full of undigested and offending matters.

Dr. J. M. WARREN remarked that some years since he proposed the question to this Society, whether a case of hydrophobia had ever occurred in Boston? None of the members who were then present, there being a full meeting, had ever seen or heard of one in this city, or in the vicinity. Very shortly after, Dr. Coale reported a case which proved fatal, attended by himself, Dr. Oliver, and Dr. Buckminster Brown, which has been printed in the Records of the Society. The symptoms came on three weeks after the reception of the bite. At the very next meeting, Dr. Curtis, of Lowell, mentioned another case, which also had a fatal termination; the symptoms appearing three months after the patient was bitten. Another suspicious case occurred in Boston about the same time, and a fourth at Watertown. There have been no cases since then (1848), until the one at Longwood, near Boston, seen by Dr. Hayward and Dr. W. (and lately reported to the Society by Dr. Hayward, see preceding No. of this *Journal*, p. 84), and the present one. The occurrence of these last cases seems to indicate either a fresh inoculation of the virus, or they may, perhaps, be justly attributed to an entirely spontaneous origin of the disease. It certainly shows that, on the reception of a wound of this description, more precaution should be taken now than was formerly thought necessary.

Laryngitis.—Dr. PARKS reported the case, which he saw ten days since. The disease had been in progress for twenty-four hours before it was examined by Dr. P. The patient was a girl 10 years of age. On inspection, the palatal pillars were found to be vividly red, especially the right one; no membranous exudation to be seen; there was complete aphonia; constant dyspnoea, the efforts at respiration being very laboured. Dr. P. directed her to swallow snow; and, in from five to six hours after this, she could make a vocal sound. Two grains of calomel were given in two doses;¹ a cold, wet bandage was applied to the throat, four leeches were ordered over the rami of the lower jaw; their bites were allowed to bleed during the entire night. Next day, the patient was very much better, and has recovered well. Hoarseness continued for several days.

Dr. Parks referred to a case successfully treated by free leeching, by Dr. J. C. DALTON, Jr.

Acute Tuberculosis.—Dr. PUTNAM reported the case of a child 10 years of age; slender, but had always been healthy. She had loss of appetite, coated

¹ Opium, in an unknown dose, had previously been administered, by the friends, to incipient narcotism.

tongue. Pulse and skin not unnatural. Had become irritable. She complained of aching in limbs; was easily fatigued. Pain over left eye. Occasional dizziness and headache. The headache was slight, and was commonly removed by a walk in the open air.

She was passing through her second dentition, and her illness was considered to be the result of the constitutional irritation arising from that state. With this view she was taken from school, and her diet and exercise carefully regulated. For two or three days she appeared to improve; but, in the course of a fortnight, although the appetite was better, and the pain in head and limbs had disappeared, she had become weaker, and her nervous irritability greatly increased. She was now confined to bed, with rapid pulse, hot skin, frequent sighing as if from fatigue, and during the day was incessantly talking to herself in a rambling, incoherent manner, for the most part in an ordinary tone, but occasionally shouting loudly. She could control herself when requested to do so, but said that the outcries were a relief. At night, all the excitement would subside, the respiration was easy, and sleep tolerably quiet. Appetite, meanwhile, sufficient; bowels regular; free from pain. She remained thus until five days before death, when the conjunctiva of both eyes was injected; the left eye slightly turned inward; pupils dilated, but no loss of vision. During the last twenty-four hours, comatose.

Autopsy.—Lymph beneath the membranes. Tuberculous granulations scattered through the substance of the brain and upon the membranes at the base. Walls of the ventricles exceedingly softened. Both lungs crowded with gray granulations. No other organs examined.

The whole duration of the disease was about six weeks. There was no vomiting or constipation. No intolerance of light. No loss of sensation or motion until just before death. The respiratory sounds, at an early period, were not unnatural. No cough at any time; and when to these negative symptoms we add the subsidence, at night, of the mental excitement and irregular respiration, we have the characters of a functional rather than of an organic affection.

Teeth in an Ovarian Cyst.—Specimen sent by Dr. HOOKER, of Cambridgeport, and shown by Dr. JACKSON, who described the case as follows:—

The patient was about 43 years of age, and had had three children. After the birth of the first, about twenty years ago, the disease probably commenced. The tumour was very hard and unyielding, but not painful, nor did it cause her any trouble, except from its bulk. Last October, she had a febrile attack, and the tumour began to soften and diminish in size, so that she thought that it was about to disappear; general health, which had been previously delicate, declined from this time.

The cyst contained three or four quarts of a broken-down curdy fluid. Parietes generally dense and rather thick. Upon the inner surface is a thin, flat piece of bone, about one and a half to one and three-quarter inches in extent. The teeth, six in number, are set in a piece of bone about three-fourths of an inch in length, two of them being firmly and the rest only loosely connected; three of them are quite irregularly developed, and it is impossible to name any one of them satisfactorily. The soft parts immediately about this last bone closely resemble the gum, and the surface is covered by epithelium; being attached to each extremity, but otherwise standing out freely into the cavity of the cyst. Of the numerous cases of ovarian disease that have come before the Society, this is the only one in which teeth have been found.

Periostitis.—Dr. C. E. WARE reported the case. Dr. W. remarked that, something more than a year since, he reported to the Society a case of periostitis of the tibia, in a child three or four years old, occurring apparently after a very trivial injury, and terminating fatally after three or four days. He had, the last week, seen another similar case. A boy, six years old, received, while coasting, a slight bruise upon the tibia, just above the ankle. It occurred January 11th. It only lamed him for the moment, and he continued about his usual occupations till January 15th, when the part became red and swollen. Dr. Ware saw him first on January 16th. There was a livid spot of about an inch diameter where he had received the injury. Around it the parts were very much swollen, hard, and extremely tender. The constitutional symptoms were quite violent. A cathartic of calomel and rhubarb was administered; and leeches, to be followed by fomentations, were directed.

The next morning his whole appearance was improved, and the leg was less swollen and tender. His pulse, however, was 124. In the after part of the day, all his symptoms were aggravated. In the night, he became delirious. The next morning, the whole leg was swollen, very tense, and tender, and he died the following night.

February 27. Hydrorrhœa. Reported by Dr. OLIVER.—Mrs. ——, 34 years of age, had been married seventeen months; had generally suffered from dysmenorrhœa; in other respects had enjoyed perfect health. She had menstruated regularly since her marriage till the period of conception, which took place about the eleventh of January, 1853. On the 22d of March, while sitting at rest, after considerable physical exertion in walking, going up and down stairs, &c., she perceived that a discharge of fluid had suddenly taken place from the vagina; there was no pain or other symptom. This fluid, on examination, proved to be almost colorless, leaving a slight reddish stain upon the linen; and, as nearly as could be estimated, was about one gill in quantity.

Dr. O. saw her immediately after the occurrence of the discharge; she was then free from pain, nor did any other symptoms exist. Pulse natural; the vagina, on examination, revealed nothing abnormal. Perfect rest was advised.

She remained in a horizontal position for one week; at the end of which time, after going down stairs, she was again affected with a similar flow, about the same in quantity; but, unlike the first, attended by much pain in the back. Rest was again enjoined, and she continued well until the 5th of April—about one week—when she was attacked a third time, the discharge, like the last, being preceded by quite severe pain in the back, and being in quantity much less, probably not more than one-half an ounce. After the last attack, she remained in bed during three weeks, and had no return of the accident. There was no apparent subsidence of the abdominal tumour after these attacks. The patient has been delivered at full term, and is perfectly well.

Dr. Oliver remarked that the source of the watery discharges from the vagina, which occasionally occur during pregnancy, seems not yet determined with certainty. By some observers, they are supposed to be a portion of the amniotic fluid, escaped, either by transudation or by rupture; by others, to come from the cavity of the chorion; and by yet others, from hydatids between the foetus and the neck of the womb, while some observers suppose the fluid to be secreted by glands about the neck of the uterus, or by the lining membrane of the vagina itself. When it is considered that these discharges are

often sudden and copious; that they are sometimes attended with severe pain; that the character of the fluid corresponds almost exactly with that contained in the cavity of the deciduae, and that they do not generally operate unfavourably on the course of pregnancy, is it not reasonable to suppose, with Velpeau, that the above-named cavity is, in many cases at least, the source of the flow? The opinion of Naegelé seems also to be not unlikely, viz: that the fluid is secreted by the uterus itself, and finds its way, behind the membranes, to the mouth of the womb, by gradually detaching them from its internal surface.

Dr. WILLIAMS read an account of two cases of successful operation for the removal of opacities of the cornea.

CASE I. *Pathological Changes of Cornea following an Affection of the Fifth Pair of Nerves. Operation.*—Mrs. —, a patient upwards of fifty years of age, came under the care of Dr. W. on the 28th of March, 1852. For ten years prior to this date, she had been subject to neuralgic pains about the head and back of neck. About four years since, she began to have occasional pains in the right eye, and thought her sight was less good than usual. Neither her ordinary medical attendant, nor another gentleman to whom she applied, could at this time discover any morbid appearances on examination of her eyes. Appropriate remedies were, however, employed. Some weeks after, the pain having gradually increased, and being accompanied by photophobia, she was informed that serious inflammation existed in the right eye. This did not yield to mild use of counter-irritants and applications of leeches, and she was advised to give her eyes rest, and to omit all treatment—a very unfavourable prognosis being at the same time given. She remained in a darkened room for several months, suffering most of the time intense pain. Afterward, under other advice, active treatment was resumed; but, notwithstanding a persevering use of active antiphlogistic and alterative means, the disease continued to advance, and the pains in right eye became more severe and continuous. The left eye was attacked about two years from the first invasion of the malady, and its progress in this eye did not seem to be arrested by vigorous treatment; salivation, setons, blisters, and depletion having been employed in vain.

When first seen by Dr. W., her condition was as follows: Though her room was darkened by closed blinds and thick woollen curtains, her intolerance of light was such as not to allow of the voluntary opening of the lids. Her eyes were never entirely free from pain, and she had daily paroxysms of intense suffering, only partially relieved by the use of morphia. A small amount of light being admitted for an examination of the eyes, the right cornea was found entirely leucomatous, with some injection of conjunctiva and sclerotica. The lower and central portion of the left cornea was opaque, and the lower edge of the pupil was adherent to its inner surface. Even this hurried examination seemed to cause severe suffering, which continued for some time.

She was ordered good diet, and one of the ferruginous preparations. Tinct. humuli, 3*j.* to be taken thrice a day, and the morphia resorted to only when the pain seemed uncontrollable by other means. A collyrium of diluted vin. opii, and a sedative lotion, were advised as local applications.

A month after, she was more comfortable, as she said, than for four years previously. Is forced to take morphia once in three or four days, but, in the intervals of the paroxysms, can open the eyes, tolerate a considerable amount of light, and perceive large objects. Eyes nearly free from injection, and an examination caused little pain.

Two weeks later, her eyes could be kept open without a shade. She rarely has any pain, and the conjunctiva and sclerota have resumed their normal aspects.

A drop of a solution of atropia was now put into the left eye to dilate the pupil. Under its influence, she could see the pattern of her dress, and distinguish objects and persons in the street. She was advised to use a drop of the solution once in two days, and thus enjoy its continued influence.

For about a year, she continued in the same condition, remaining nearly free from pain, and having a very useful degree of vision with the left eye, the pupil being kept dilated beyond the size of the corneal opacity. But, about the middle of April, 1853, the opaque portion of the cornea began to appear elevated, as if from an accumulation of fluid beneath the epithelial layer. This prominence increased slowly at first, but, after it became so great as to interfere with the movements of the eyelid, it rapidly augmented. As she not only began to have pain, and a tendency to spasmodic closure of the lids, but as the friction of the lids seemed to extend the area of opacity, and thus render her vision less good, an operation was done on the 2d of June to evacuate the fluid, and, if possible, remove the morbid tissue. Ether was not administered, and she complained so much of pain that but half the opaque membrane was cut away.

In the afternoon, she spoke of having suffered intensely, and of having had nausea. Three grains of opium were taken in the course of the day. During six days, she used a grain of opium daily to relieve the severity of the pain, though the eye was scarcely at all injected. From this time, the paroxysms became less violent, and, three weeks after the operation, she was once more restored to her former state of comfort and degree of vision.

The next record of the case is on the 14th of December. Within the previous four weeks, her sight was gradually lost, so that she could no longer distinguish any objects, even after employing the atropia. The opacity of the cornea, which had not been completely removed by the operation, became larger, and, within a few days, had begun again to be prominent, and to interfere, as before, with the motions of the lids.

Another operation was therefore performed, and, in order that it might be executed with the least possible violence to the eye from the involuntary rolling of the globe, the patient was rendered insensible by ether.

After removing a portion of the opacity, it was found that it could be peeled off from the cornea with slight resistance, much in the same manner that the kidney may be divested of its envelop. It was completely removed and the cornea rendered quite transparent. The substance appeared to be the thickened epithelial layer; but, unfortunately, it was not submitted to microscopic examination.

Severe pain, with nausea and vomiting, came on as soon as she recovered from the effects of the ether, and, when she was visited some hours after, she appeared to be suffering intolerable agony. Three grains of opium were immediately administered, and she took two other doses, of one grain each, before experiencing relief.

During several days, she had paroxysms of severe pain, but the eye was scarcely at all injected. A week after the operation, the cornea seemed healed, with but slight opacity, and she could distinguish objects better than at any time since first seen by the reporter.

On the 24th of January, 1854, the solution of atropia was again made use of to dilate the pupil, and by its aid she is once more able to read, for the first time for nearly five years.

CASE II. *Removal of Central Opacity of Cornea.*—Jane, æt. 20, a domestic in the family of a physician, got a few drops of a solution of corrosive sublimate into her right eye in August, 1850. Much pain was felt at the moment, and she was confined to her room for a week by inflammation which ensued. This was subdued by the use of a mild collyrium. An ulceration was noticed at this time, but she suffered no inconvenience for several months. She then began to complain of pain occurring several times a day, and accompanied by a flow of tears. This especially happened early in the morning, when over the fire, or when washing or ironing.

In May, 1852, the ulcer was of considerable depth, with ragged edges, and nearly filled with a whitish mass. No vessels in its neighbourhood. It was touched every second day with a saturated solution of arg. nit., and afterward with a crayon of sulph. cupri, and in ten weeks the edges of the ulcer became more smooth. The frequency of the pain seemed diminished by these remedies.

Was seen by Dr. Williams on the 12th of October, 1853. She still complained of pain and lachrymation. The centre of cornea was occupied by what seemed a deposit of some foreign substance, but no such deposit could be accounted for from her having used collyria of lead or other substance liable to cause its formation. Vision was indistinct from the opacity itself, and from the irritation evidently existing. Ether was administered, and a scale of opaque matter easily removed. On chemical and microscopic examination, no mineral or earthy substance could be detected.

The epithelial layer, around the scale which was removed, was slightly cloudy, but the idea was entertained that it would be thrown off, or its transparency be restored, without other aid than the natural processes of absorption and repair. Such did not prove to be the case. The pain and uneasiness of the eye were entirely relieved; but, as a visible opacity remained, and vision was still imperfect, a second operation was performed on the 11th of January, 1854, three months subsequent to the first. After insensibility had been induced, the globe was held by seizing the conjunctiva with fine forceps, and the opacity removed, in small portions, by shaving off the epithelial layer by means of a cataract knife. No inflammation ensued. The inconvenience felt during a day or two was rather from the parts of the conjunctiva which had been pinched by the forceps than from the wound of the cornea. The transparency of the cornea is entirely restored, and vision as good as before the accident.

ART. IV.—*Ligation of the Gluteal and Internal Iliac Arteries.* By CHAS. S. TRIPLER, M. D., Surgeon U. S. Army. (Communicated by THOS. LAWSON, M. D., Surgeon-General U. S. A.)

ON the afternoon of the 8th of November, 1853, I was called in haste to see a man, said to be bleeding to death from a cut. Dr. Bertody was in my office at the time, and, accompanied by him, I repaired immediately to the spot.

We found the patient in a state of syncope, and deluged with blood. Upon inquiry, we learned that he had been engaged in pulling down a fence, and,

while straining at it with both hands, it gave way, and he fell forcibly to the ground. Immediately behind him stood a broken wine-bottle, with a shaft some five inches long and three inches wide at the base. This shaft had penetrated the right buttock, within an inch of the ischiatic notch, had ranged forward to the inner aspect of the thigh, and denuded the neck of the femur. Passing our fingers into the wound, we found that we could feel their points on the inside of the thigh, with apparently nothing but the integument intervening.

We satisfied ourselves that neither of the trunks of the principal vessels were wounded, then plugged up the wound with lint, applied a suitable compress and bandage, and sent the man home.

In the evening, I found him comfortable, with no recurrence of hemorrhage, and it was hoped that none but terminal muscular branches were wounded, which the plugging and compression would probably restrain.

The next morning, 9th, there had been sufficient oozing to stain the compress and bandage in the vicinity, but both were perfectly dry.

On the morning of the 10th, I attempted to remove the plugging. The first portions came away unstained; but, the moment I disturbed the deepest portion, the hemorrhage burst forth afresh. I immediately replaced the plugs, compress and bandage, and determined to leave them in position till they should be detached by suppuration. That night, profuse hemorrhage again took place. In the morning, it had ceased, and the dressings were not disturbed.

During the night of the 11th and 12th, another flow of blood had occurred, but had again ceased. The bandage seeming to be loose, I applied a fresh one, and a new compress, very firmly. I had previously bandaged the whole limb. The temperature of the limb was natural; there was no tumefaction of any consequence about the hip or thigh; no pain; some restlessness; slight febricula; the patient presenting no other morbid appearance than such as would be naturally due to the loss of blood. In this condition, he passed the day.

About midnight, I was again summoned to his bedside, in consequence of the recurrence of alarming hemorrhage.

In reflecting upon this case, and conversing with other surgeons as to the necessity likely to arise for an operation, I had formed the probable opinion that it was the internal circumflex that supplied the hemorrhage, and among my friends whom I had consulted, the external iliac was considered to be the vessel upon which the contingent operation was indicated. In accordance with this impression, when I reached the patient, I at once applied my finger to this artery in the groin, and sent for assistance. Drs. Bertody, Nott, and Hitcheock came to my aid. With the finger still upon the artery, the bandages and plugs were carefully removed, and the wound thoroughly explored. It was then discovered that compression of the external iliac did not control the hemorrhage, but the finger upon the gluteal, through the wound, seemed

to have that effect. Further examination, however, showed that this was not of itself sufficient, but that compression of both vessels was required to arrest the bleeding. It was then decided to plug the wound firmly, and wait for daylight to take up the common iliac artery.

At 10½ A. M. of the 13th, Drs. V. Mott, Jr., Bertody, Nott, and Hitchcock met me at the house of the patient. The dressings were removed, and another thorough exploration of the wound instituted, with results similar to the preceding. After an anxious consultation, it was decided that the gluteal artery should be first tied, and then, if further operation were required, a ligature should be placed upon the external iliac.

In the presence of the gentlemen above named, and assisted by Drs. Mott and Bertody, I enlarged the wound upon the buttock, divided the glutei muscles, and exposed and tied the gluteal artery as it emerged from the pelvis.

All bleeding was at once arrested. The clots were removed by the finger from the whole extent of the original wound, as far as they could be reached, the wound itself kept open, and we remained an hour or more watching the effect. There being no return of hemorrhage during this time, the wound was drawn together with two or three stitches, a bandage nicely applied, and we retired, felicitating ourselves upon the happy result of our labors.

About 2 P. M. of the same day, I was again sent for, with the alarming intelligence that the bleeding had recurred with as much force as ever. I dispatched the messenger to summon my associates, and lost no time myself in repairing to the bedside of the patient.

I found the bleeding again arrested by nature, and I then waited quietly for the other gentlemen. In a few minutes, Drs. Mott, Bertody, and Nott arrived. The bandage was removed, the points of suture divided, the coagula cleared away, but no hemorrhage appeared. A napkin was thrown loosely over the wound, and we waited a few moments to watch the result. Upon removing the napkin, in about ten minutes, we found the cavity again filled with arterial blood. This was sponged out, when the welling up of the vital fluid again ceased. It was a puzzling case. We were, as yet, *not sure* that the bleeding vessels were branches of the femoral, though there was an aneurismal thrill in the course of that artery. They might be derived from the internal pudic, the ischiatic, or obturator arteries. Active and continuous hemorrhage was necessary to enable us to determine this point. The circulation was too feeble to afford the requisite current. Notwithstanding the exhaustion of the patient, he stoutly resisted every persuasion to swallow a little brandy and water. At length, by positively insisting upon his obedience, we succeeded in giving him some while the wound was perfectly clean. In a few moments, the bleeding slowly and sluggishly returned. Then firm pressure was made upon the femoral by each of the gentlemen present, with no effect, and all were satisfied that the hemorrhage did not proceed from any branch of the external iliae. Ligation of the internal iliac was promptly decided

upon, and I at once proceeded to the operation—Drs. V. Mott, Jr., and Bertody rendering the most valuable assistance.

Dr. Mott recalled to me a suggestion of Sir Astley Cooper, and afterwards strongly urged by Dr. V. Mott, Sr., as to a most effectual mode of protecting the peritoneum. My operation verified its rigorous exactness.

A curvilinear incision was made from a point an inch and a half within the anterior superior spine of the ilium to the outer column of the external ring—its concavity looking to the median line. The integument and the fascia superficialis were divided, and the tendinous portion of the external oblique exposed. In this incision, a superficial branch was divided. It was immediately seized and tied, before it had discharged half a drachm of blood. With this exception, not a drop of blood was lost in the operation. The tendinous portion of the external oblique muscle was next divided, and the spermatic cord exposed. Guided by the cord, I passed my finger at once into the internal ring, and upon the finger, as a director, I divided the lower edges of the internal oblique and transversalis muscles, and the fascia transversalis; then, inverting the finger, the latter was divided downwards to the full extent of the first incision. The peritoneum was perfectly safe. The knife never approached nearer to it than the thickness of my finger during the dissection. The peritoneum was then separated, and pushed aside by the fingers, and the internal iliac reached, at a depth of from four to five inches from the surface. The needle was passed under it with some difficulty, the point slipping from the hook before it was fairly engaged. Dr. Bertody succeeded at last in seizing it with his fingers and drawing it out. This difficulty was owing to its having become quite dark, and our having but one miserable candle to illuminate the track of so deep a wound. I then tied the vessel, by passing my fingers close down upon it with the knot. The wound was brought together with stitches and adhesive straps; the accidental wound cleaned and dressed; an anodyne administered; beef tea, to be freely given during the night, prescribed; and the patient left to his repose.

On the morning of the 14th, I found him quite comfortable; free from pain; pulse 90; tongue clean and moist; mind slightly disturbed; no return of hemorrhage, and altogether encouraged. He was, however, much blanched from loss of blood, and evidently required as much support from nourishment as his stomach could manage. The injunctions for his nutrition were repeated, and perfect rest enjoined.

Evening. Symptoms the same; the wound in the abdomen looking well; no tenderness of the abdomen nor any alarming sign. He thought the morphia (Magendie's solution) excited him too much, and I substituted McMunn's elixir of opium.

Tuesday, 15th. The man complained of having passed an uneasy night. He had not been fed as directed; seemed somewhat more exhausted and irritable; tongue clean and moist; pulse 90 to 96; abdomen a little tense; no tenderness whatever; both wounds looking well.

Evening. I found him with distressing hiccough; pulse 96; tongue moist and clean; abdomen tympanitic, but without tenderness; mind somewhat disturbed. His nurses had again neglected him, and that seemed to increase his fretfulness and irritability. His bowels had not been moved since the operation (then forty-eight hours), and he told me he had taken an injection a little while before, but it had passed without any other effect. I gave him a full anodyne, applied a warm emollient cataplasm over the abdomen, again enjoined the support his anaemic condition so strongly demanded, and ordered *ol. ricini, ʒj,* to be given at daybreak in the morning.

Wednesday, 16th. At 10 A. M. I found him without hiccough; his abdomen much softer; a little tenderness at the edge of the wound, but none elsewhere; pulse 96; skin comfortable; tongue disposed to become dry, but clean; more anxiety than I liked, but, upon the whole, as well as the night before. The oil had been administered but a short time before my visit, instead of at daybreak, and, of course, had not yet operated. Ordered camphor julep, in case of return of hiccough.

Soon after I left him, he became worse; the hiccough returned, and he sank and died at about 6 or 7 P. M., three days after the operation. With great difficulty, I succeeded in getting a hurried autopsy, twenty hours after death. Drs. Mott, Gray, and Hitchcock were present.

There had been sufficient peritonitis to produce adhesion of that organ to the tissues in relation to it, but without injection of its vessels, deposit of fibrin, or effusion of serum. The ligature was found embracing the internal iliac an inch below the bifurcation, and a firm coagulum already deposited above the point of ligation.

This man was thirty-six years of age, had lived an intemperate and irregular life, but, at the time his injury was received, seemed to be free from disease.

I cannot close this communication, without recording my deep sense of the able and intelligent assistance rendered me in both operations by my friends, Bertody and Valentine Mott, Jr. I fully believe that, with proper and assiduous care on the part of the nurses, the termination of this case would have been different.

SAN FRANCISCO, CAL., January 11, 1854.

ART. V.—*On the Fevers of Syria.* By JOHN WORTABET, M. D.
A native Syrian physician.

MEDICINE is an eclectic science. It is only by the accumulated observation of sagacious minds, often following distinct and sometimes opposite theories and modes of treatment, that this science has become what it is at

present, and by which it is still to improve. Nor is this proposition true only of our own times; the Aphorisms of Hippocrates, the most ancient treatise on medicine, are considerably indebted to prior observation and experience; and the Canon of Avicenna is well known to be a digest of the labours of others.

I early in my career aimed to follow this principle, and consequently have been closely attentive to the practice of educated physicians of various schools, with whom it has been my lot to meet by the bedside and in the social circle, where the dogmas of our respective text-books were freely discussed, theoretically and practically. I have also carefully observed that of my brother native physicians, who are generally either followers of the old humoral theory, or are totally ignorant of books and theories, and trust for success to their own sagacity and experience. The conviction that the experience of the latter, at least in the fevers of this country, is worth something, induced me to observe their practice, and watch its results; but especially did I turn my attention to those general principles which prevailed among them, and which experience seemed to have taught them individually.

A diligent study of the morbid phenomena which our fevers exhibit, and of the result of the remedial agents which are recommended by the best English and American authorities, soon convinced me that the principle I followed was the right one. It seems from the account of these books that the common continued fever of this country is considerably different in its pathology from that of Great Britain and of the United States; and, as such, requires a modified treatment. I feel confident that I am supported in this opinion by every intelligent physician, English and American, who has had the necessary opportunities for judging in this matter. The facts, which will be presently stated, will be sufficient, I trust, to lead my readers to the same results which have been formed in my mind.

I have classified our fevers under three forms only, intermittent, bilious remittent, and synochal fevers; with what propriety, the sequel will show.

I. Intermittent Fever.—This disease presents two varieties, the *simple* and the *malignant*. And, although this last variety is mentioned by very few authors, yet its symptoms, prognosis, and treatment are, in some respects, so distinct from the other, that it demands a separate and full consideration. There is another still, which is included by many authors, under this head, namely, the *masked*; but the first two only will fall under our present consideration.

a. Simple Intermittent Fever.—This is one of the most frequent diseases of this country. Very few, if any, either natives or foreigners, escape its attacks. We have not kept statistical tables of the almost numberless cases which we have seen; but our impression is that the tertian type is the most frequent; quotidiants come next, and quartans, though very usual, are less prevalent. This order of predominance, however, is not very decided. In old cases, they

often run into each other. Quotidians may become tertians, and tertians quartans; and all these may run into the remittent and then into the continued types of fever. It prevails mostly during the summer and autumn.

Symptoms.—The symptoms of intermittent fever are so much the same all over the world, that it will be needless to describe them particularly. Before the chill commences there is a general lassitude of body and mind, indicated by yawning, stretching, and entire aversion to corporeal or mental efforts. This is succeeded by a well-marked chill, which, in the first few attacks, is long protracted, and quite severe; but in old cases becomes much shorter and lighter. The hot stage is ushered in by occasional flushes of heat along the course of the spine, which follow each other, more and more rapidly, until the whole body is enveloped in one continuous flash of burning fever. Contrary to expectation, the symptoms of this stage do not seem, from the accounts in medical books, to be severer in this country than in colder or more temperate climates; the flushed face, red tongue, thirst, full and frequent pulse, preternatural heat, high coloured and scanty urine, seem to acquire no intensity from the influence of a warmer temperature. This stage is succeeded by the third of authors, the *sweating*. Slight drops of perspiration on the palms, and about the forehead, neck, and chest, increase and extend until very often the bed of the patient is literally wet through. After this, the fever, with all its attendant symptoms, vanishes altogether.

Very often, the paroxysms are accompanied by an inflammation of some viscera. Inflammations of the stomach, liver, and spleen are the most common. But on the cessation of the paroxysm, the inflammatory symptoms are either mitigated or entirely subside. Such inflammations, however, when they exist during the intermission, generally accompany well-established cases. It is hence, perhaps, that we have ultimately the troublesome sequelæ of intermittent fever, in the form of chronic inflammations, indurations, and abdominal dropsy. The stomach and liver are the most liable to chronic inflammation, and the spleen and peritoneum to induration. By far, however, the most common consequence is an enlargement of the spleen, which sometimes attains to an enormous extent. If inflammation must necessarily precede induration, as a rule in morbid physiology, we have not been able to detect it in many instances; but it is not impossible that the inflammation was of such an obscure, subacute character that it eluded notice.

Causes.—From the almost general consent of authors since the times of Lancisi, as well as from our personal observation, we have no doubt that marsh miasm is one of the remote causes, probably the most efficient among them. We are aware that this has been denied by some recent authors, and other causes have been adduced in its place; but, after examining these new views, we can neither concur in the cryptogamous theory, nor in that of the hepatic of summer and pulmonary of winter fevers.

Strictly speaking, there are very few marshes in this country, at least where we have resided or travelled. But in looking for miasmata in places

where intermittents abound, we have never looked for proper marshes. The decomposition of vegetable matter in aqueous collections, other circumstances being favourable, always satisfied us that what is called marsh miasm was the natural product. Thus, Tripoli is surrounded by a large number of gardens, and a considerable river for this country is consumed in watering the summer plants in them. In the process of irrigation, much water accumulates in beds; and necessarily vegetable fermentation and decomposition go on through summer and autumn. Here, we have all the elements of marsh miasm; and when we take into consideration the solar heat, with the humidity which is spontaneously evolved by rich irrigation, we can fully account for the sickly climate of Tripoli during these seasons, and especially for the prevalence of intermittents. Hence it is, also, that those who pass their nights in attending to the plantations, rarely escape the fever, which is generally of the intermittent or remittent types. This, with another fact, namely, the universal precaution, taken by the inhabitants of that city, of shutting the windows by night, to exclude the night air, is strongly corroborative of the observation of many distinguished physicians, who have studied the phenomena of malarious districts, that the baneful influence of marsh miasm is mostly deleterious during the night.

We have many other instances on hand, clearly proving that marsh miasm is an efficient cause of intermittent fever. But as it is not our object to defend this doctrine against those who ridicule it, and the limits of this article do not allow of our fully discussing this interesting part of our subject, we will pass on to mention another cause.

The noxious effluvia generated in filthy towns and cities are another remote cause. That such effluvia are an efficient cause of disease, is universally admitted; but what we would insist on now is, their causative relation to intermittent fever; not merely that they tend to produce this disease, or to provoke it when latent in the system, but that they are a powerful remote cause, and worthy of such a consideration in the etiology of intermittents.

The limits of this article will not allow us to prove this point, either to our own satisfaction or to that of others, who are taken up with the exclusive importance of miasm. We will touch briefly, however, on the subject, by adducing one remarkable instance.

Hasbeyah (where the writer at present resides) is a small town, built very compactly on the declivity of one of the high hills which lie at the foot of Mt. Hermon. The hill faces the north, and close in front of it is another hill, which, by reflecting the rays of the sun, makes the town very warm in summer. The valley is almost perfectly dry during the summer and the autumn, and the inhabitants are supplied with water by small fountains. At some distance from it, and behind a ridge of hills, the River Hasbany, one of the sources of the Jordan, runs southward. The plain of the Huleh, which lies some twenty-five miles to the north, is very marshy; but this does not seem to influence the town at all, from the fact that the

villages which are situated between it and the marsh are, on the whole, remarkably healthy. Yet, Hasbeyah is a notorious place for intermittents of the most obstinate character which we have ever seen. This strange phenomenon can only be accounted for, in our view, by the extreme filth of the town, which hardly knows any parallel. We will not disgust our readers with the narration of particulars. Suffice it to say that, after long and careful examination, we can assign no adequate cause for the prevalence and obstinacy of the fevers of this place, but its filthy streets, houses, and habits of the people.

Were we to extend the argument to other places, we should find much to support our position. We should have the same support from appealing to the acknowledged predominance of this disease among the poor, and others who are exposed to noxious effluvia, though their locality be entirely free from marsh miasm.

To these causes may be added sudden atmospheric vicissitudes, which prevail to a great extent in some localities of this country during the autumn. It is well known that such sudden changes are a fruitful source of fevers, but we have never had an opportunity to see the operation of this cause when acting alone; and we cannot tell, therefore, how much importance is to be attached to it in producing or promoting intermittents.

The *exciting causes* are errors in diet; over-exertion, corporeal or mental; strong emotions; imprudent exposure, especially at night, &c. &c. But, as it has been philosophically observed, these causes may be exciting or predisposing, according to the order of events.

Treatment.—In *simple* intermittent fever, we have never seen a case that demanded any treatment during the paroxysm. Nature does her work so promptly and effectually, that the interference of art is unnecessary if not injurious.

During the intermission, if the state of the bowels demanded it, we have been in the habit of giving a purgative. But we do not think that the exhibition of purgatives is essential to the efficacy of the quinia, as some suppose. To a large number of our patients no cathartic was given, but the result of the quinia was completely satisfactory. With emetics, as preliminaries, we have no experience; nor do we think they can be needed except in extraordinary cases.

The great antiperiodic remedy, quinia, has never failed, in our hands, to stop the paroxysms. One scruple, taken in two-grain doses, during two intermissions, two-thirds of which was given in the first, and the remaining third in the second, was sufficient in all recent cases. We prefer, however, uniting to the quinia small doses of sulphate of zinc or extract of gentian, as it may be taken in the form of powder or pill. Under such a use of this remedy, we have frequently stopped the coming fit, and invariably the one succeeding it. We have seen the quinia employed in different ways, but our method was so satisfactory that we have never been tempted to change it.

In old cases—of some months' standing—we have found it necessary to give this article in a larger quantity. We have never exceeded, however, a drachm, divided into two-grain doses, and given for some length of time. In such cases, a scruple would be sufficient for stopping the paroxysms; but it is to preclude a relapse that the medicine should be extended for some time. Where quinia had been taken before the patient applied to us, and he had had several relapses, we put a blister to the epigastrium, and gave the quinia largely, and then followed it with tonic or bitter decoctions. In such cases, a course of mercury has been recommended, but we have never had occasion for it. We may say the same of arsenic. One great objection to the use of the last article in this and other diseases, is the carelessness with which medicine is often taken in this country, and the sad consequences of a mistake.

In our present place of residence, we have not been able, after all our efforts, to put every case out of the reach of a relapse. Nor is this to be wondered at, when we consider the continued influence of the remote, and sometimes the exciting cause of this disease. Under these circumstances, change of air seems to be the most hopeful of any treatment.

Occasionally, a little fever, indicated by headache, thirst, frequent pulse, &c. filled the intermissions, and thus contraindicated the use of quinia. To subdue these symptoms, we have found a few leeches applied to the epigastrium, or to any tender spot in the abdomen, with acidulated drinks, low diet, and aperient enemata, quite sufficient. When the symptoms run high, a general bleeding is necessary, followed by the above-mentioned milder means. When a full intermission is produced, the quinia should at once be given.

Chronic inflammations, arising as sequelæ of this disease, we have chiefly treated by leeching and counter-irritation, and with considerable success. We have also used such internal remedies as were indicated by the inflamed viscera. Enlargement and induration of the spleen or peritoneum, when recent, readily gave way to repeated blisters; but in very old cases they are exceedingly obstinate, and in many instances perhaps incurable. Abdominal dropsy, arising from an organic affection of one or more of the abdominal viscera, is a formidable disease; and the most active treatment is sometimes useless. In all these sequelæ, we have seen considerable benefit from a gentle but long-continued course of mercury.

b. *Malignant Intermittent Fever.*—Under this name authors comprehend all dangerous complications of intermittent fever. Some have classified them under three heads, namely: Cerebral, thoracic, and abdominal. Without questioning the propriety of this classification, our remarks will be confined to the first head, as our experience extends to it only.

We have observed two varieties of cerebral complications, which we may call the *comatose* and the *congestive*. The two cases which we have seen of the former variety were females, and, after a short chill, were characterized by a peculiar coma, very much like that of catalepsy; the face was pallid, and of a marble-like hue, the eyes were closed, the muscles relaxed, and the

intellectual consciousness entirely suspended; but the pulse and natural heat were hardly affected; nor did the face or pupils indicate any active congestion of the brain. Thus, it would seem that the pathology of this comatose state is similar to, if not the same as, the coma of catalepsy and other kindred nervous affections. Both recovered; one after repeated bleedings, and the other readily gave way to assafœtida enemata.

Of the *congestive* variety we have seen three cases. One terminated fatally in less than an hour. This case was also a female. She had had one or two paroxysms of simple intermittent fever, with some symptoms of congestion. On the fatal morning, after the usual chill, she all at once became apoplectic. When called to see her (half an hour after the paroxysm had set in), the following symptoms were observed: Turgescence of the face, stertorous breathing, complete unconsciousness; small, irregular, and very frequent pulse; indications of pain on pressing the epigastrium, and coldness of the extremities. Hot cloths were at once applied to the epigastrium, and to the extremities, and before anything else was resorted to, death terminated the scene.

We took notes of the second case, and they are now presented just as they were then taken:—

July 30th, 10 A. M. Saw ——, who presented the following symptoms: Unconscious, constantly muttering unintelligible words, tonic spasm of the upper extremities, iris sensitive and rather contracted, pulse hard and frequent, moans on pressing the upper part of the abdomen, bowels regular. On inquiry, was told he had these symptoms on the day before in a slight degree, preceded by a chill, and ending with free perspiration on the morning of this day. The symptoms of this paroxysm were also preceded by a chill.

Apply cups to nucha, twenty leeches to epigastrium, ice to shaven head, and strong sinapisms to feet. By sunset he perspired freely, and all the morbid symptoms vanished.

31st. By mistake no quinia was given. After a chill, early in the day, all the former symptoms returned.

Apply ice to head, a blister between the shoulders, two on the lower part of the legs, and sinapisms to inner part of the thighs. He began to perspire early, and before sunset the fever abated.

Take at once 3 grs. sulph. quinia, and repeat every hour until three doses have been taken.

August 1. Has had a slight paroxysm late at night, which terminated as usual with free perspiration. Repeat quinia.

4th. No more paroxysms—quite well.

Of the third case, we regret to say that no notes were taken. But we distinctly remember, that the paroxysms followed each other so closely that we had no intermission for administering the quinia; and, in spite of all our efforts to relieve the internal congestion, the patient died. We may remark of this case, by the way, that there seemed to be congestion of the abdomen as well as of the brain and its membranes.

Treatment.—Our experience in this variety of intermittent fever is so

limited, that the few observations which will follow must be rather theoretical. Especially is this the case, as we have not had the privilege of *post-mortem* examination in the fatal cases.

We do not feel sure whether the pathology of the *comatose* variety be a mild congestion of the brain, or whether it be of a purely nervous character. The probability seems to us to be in favour of the last conjecture, but it is not impossible that the other may be true occasionally. Of course, the treatment of such a case will depend on the conclusion we arrive at, from the close study of individual instances. If symptoms of congestion be present, bleeding, general or local, revulsions, &c. will be indicated. But if we have a pallid face, natural state of the pupils, pulse and heat, we should resort to stimulants, irritants, and antispasmodics.

There can be no doubt, to our mind, that the pathology of the *congestive* variety, is a strong congestion of the brain and its membranes, with considerable effusion in fatal cases. The principles of treatment which we entertain have been fully illustrated in the case the notes of which we have before presented. To the means which were then used, we would add, general bleeding in all plethoric subjects, and where the hardness and fulness of the pulse indicated it. We cannot speak too highly of topical bleeding, of leeches behind the ear, or cupping the nucha, when the congestion seems to attack the brain principally; but when the epigastrium is tender on pressure, we would by all means apply a few leeches there. Revulsives should not be neglected in any case, after due depletion if necessary.

But, after all, the best service of the medical art in this disease, is to take advantage of the first intermission, and to put the system under the influence of the quinia as soon as possible, because we have found that this variety of intermittent fever does not keep regular hours. A slight degree of fever which may remain during the intermission, should not deter us from the prompt use of the great antiperiodic.

II. Biliary Remittent Fever.—By this term we understand a fever, of the remittent type, in which the functions of the liver are deranged to such an extent as to be a characteristic of the disease. We have not yet met a case of the remittent fever of authors, exclusively of the biliary, which we may not rightly include in the synochal fever of this country; because our fevers, of whatever kind they may be, never assume the continued type in their early stages, except in very rare and violent cases.

The period most favourable to the generation of this fever, is the same in which other fevers prevail, namely, summer and autumn.

Symptoms.—It is very rare that the invasion of the actual symptoms is sudden, and without a lengthy warning. Loss of appetite, bitterness of the mouth, a troublesome feeling in the stomach, and general languor, in most cases precede the fever for some time. These are aggravated and then succeeded by flushes of cold and heat alternately, or by a regular chill, after which

fever sets in with all its usual symptoms. This fever, however, is characterized by an irritable stomach, nausea, vomiting of healthy or vitiated bile, bitter mouth, whitish or yellowish tongue, etc. Frequently, there is pain on pressing the epigastrium and right hypochondrium, or it may exist spontaneously, sometimes extending to the right shoulder. The state of the bowels is variable.

The character of the remission is by no means uniform. Sometimes it is incomplete and short; at others, it amounts almost to an intermission, and is quite long. This variation arises from the extent of the perspiration which always precedes, in the way of fair proportion; the more complete the perspiration, the more complete the remission, and *vice versa*.

Causes.—We have not been able to detect any *special* remote cause concerned in this variety of fever. It seems that all the causes which produce intermittents are the same which cause the bilious remittent form. Nor do we know whether there is anything in the nature of these causes productive of modified effects; or whether, as it has been sometimes said, the modification arises from the peculiar condition of individual cases exposed to the essentially same cause. The question in all its particulars can only be solved by a further and more accurate knowledge of the etiology of fevers.

It has been said by men of distinguished learning and experience, that warm climates abound in liver complaints much more than temperate latitudes; and that this organ, when not directly affected, sympathizes in a large number of their acute diseases. Is *heat*, then, the modifying agent of malaria in the production of bilious remittent fever? It may be; for, in several instances which fell under our observation, it was evident that too much exposure to the rays of the sun had a great share in bringing on the disease.

To the exciting causes which were mentioned in a former part of this article, we may add exposure to the influence of solar heat, and of cold and damp nights, washing with cold water during a general perspiration, or otherwise checking the cutaneous secretion.

Treatment.—During the early stages of this fever, a general bloodletting is the principal means for fulfilling the first indication, namely, to procure a full intermission. After a moderate bleeding, the symptoms often give way to a general and free perspiration. A second is occasionally required by the return of all the former symptoms. Of course, a due regard should be had to the pulse in all cases, but it is not to be implicitly followed; because, in this, as in other kinds of fever, it is not always uniform. More consideration should be given to the symptoms, circumstances, and particular contingencies of the case. But to produce such a favourable crisis by general bloodletting, it should be restricted commonly to the first few days of the fever.

In very mild cases, or where venesection is contra-indicated, topical bleeding by leeches from the epigastric and hepatic regions will be sufficient. Often, however, this will have to be repeated before we can obtain a full intermission. But topical bleeding is not confined to these mild cases; it serves

a most important service where general bloodletting is demanded, and after it has been performed. When this operation has not subdued the fever or the gastric irritability, we have often seen the application of twenty leeches at once produce the desired result.

The state of the bowels is not to be neglected. When they are costive, they should be gently evacuated by emollient or aperient enemata. Of the former, we have been in the habit of prescribing a decoction of malva with a little common oil and salt; and it is very seldom that one or two such enemata do not bring away a large quantity of fecal matter. If, however, these do not operate, or a stronger action is desired, instead of common salt we have put in the decoction an ounce or two of Epsom salts—but always with the precaution of mixing it in half the usual quantity of common elyster, lest the whole be ejected before the salts shall have operated. We have found this way of administering salts a good substitute for the use of purgatives by the mouth. By sad experience we have learned that purgatives are quite inadmissible in all our fevers, with the exception, perhaps, of a few cases. When the stomach does not reject them, they almost invariably increase the gastric irritability, and with it the fever. During convalescence, however, a slight headache will often give way to a dose of castor oil, which we have found to be the least irritating of that class of medicines.

In all cases where the gastric irritability was not very great, we have used small doses of calomel and ipecac. as an alterative and diaphoretic; but we have never pushed the calomel so far as to produce ptialism. A gentle and continued diaphoresis was the result of this combination generally, which did a great deal towards subduing the febrile symptoms.

As long as the patient is feverish, we always direct him to drink some *ptisan* instead of common water. If the tongue be very dry, we recommend some mucilaginous drink with a little ice in it; but when it is moist, we have seen greater benefit from the use of iced acidulated drinks. Infusion of tamarinds may be allowed if grateful to the patient, but when the stomach is very much irritated, it should be very weak.

Under these means, a full intermission is generally produced. If the symptoms show any tendency to return, the quinia should be given, but we have not found it necessary in many instances.

This, in brief, is the treatment we have used in those cases which it was our lot to meet. We have not seen the severe or fatal cases, which are said to be accompanied with cerebral complications, and which undoubtedly require more energetic treatment.

III. *Synochal Fever.*—Under this term we comprehend most of the varieties of continued fever, as the synocha, synochus, and typhus of authors. The error, if it be one, of reducing these varieties into one head, has arisen from the repeated observation that their diagnostical symptoms do not appear either in the initial or middle stages of fever, and their appearance in the

last leads us to suspect that they are but various modes in which one disease terminates.

It may be a matter of surprise to a great many that we do not propose to consider typhus as a peculiar and distinct variety of continued fever. The fact is, we have never seen a pure case of this kind, characterized from the beginning by typhoid symptoms. We have seen many cases of synochal fever *terminate* in the worst symptoms of typhus, but we do not remember one which began in this way. Others, however, practising in this country, have told us that they have met it occasionally in its purest form. It is not impossible that, when it prevails, it may be epidemical.

Another variety of fever is also included here, which others may suppose demands a separate and distinct consideration. We allude to the remittent fever, which is not of a bilious nature. The reason why this is included is, that our synochal fever never assumes the continued type at once, but continues to be in some sort a remittent until a considerable time has elapsed from its invasion. There are exceptions to this statement, but they are rare, and cannot claim more consideration than what is due to exceptions in general.

Symptoms.—Like the bilious remittent, it is very rare that synochal fever sets in at once. Most commonly, the premonitory symptoms are protracted for some days; and it is a question, not altogether unimportant, whether these symptoms form a part in the chain of morbid phenomena produced by the febrile cause, or whether they should be considered as abnormal deviations acting as predisposing causes. Be this as it may, the patient feels unwell for a day or two, or more, before all the essential elements of fever appear. During the day, lassitude, yawning, fulness of the head, loss of appetite, bad taste in the mouth, &c., trouble the patient; and, in the night, restlessness, feverishness, and sometimes vomiting take place. These, with a general or epigastric uneasiness, and a feeling of soreness in the limbs, constitute the chief premonitory symptoms.

Some time or other, generally in the day, these symptoms are succeeded by a regular chill, or by slight chilliness alternating with flushes of heat, and terminating, after various degrees of length, in the actual symptoms of fever. The pulse becomes hard and frequent, sometimes full; but, in some cases, by constitution, or some other contingency, it is small. The face is flushed, the temporal arteries throb, the eyes often suffused, and the head heavy or painful. The tongue assumes various aspects; sometimes it is red, and dry, and rough; sometimes it is coated with a dirty layer of mucus, except the edges, which are red; and sometimes it is moist and almost natural. But, however the state of the tongue may be, the stomach is almost invariably irritated, as indicated by the intense thirst, tenderness on pressure, and vomiting, which are present more or less in every case. The bowels may or may not be costive, but the former state generally prevails. The urine is high coloured and sedimentitious. The skin is dry and hot, but it is very rare to

meet with the *calor mordax* of writers in the early stages. With these symptoms, there are restlessness, pain in the limbs—especially in the loins, shoulders, and knees—general or praecordial anxiety, &c.

After continuing some hours, generally somewhere between six and twenty, the urgent symptoms give way to a gentle perspiration; but, while there is an abatement of the fever, it by no means goes off entirely. The remaining febrile action may be distinctly observed in the moderate frequency of the pulse, the clammy state of the tongue, the continued, though abated thirst; in a word, we see a full *remission* of the books. The remission generally continues more or less, according to the degree of perspiration which preceded it. The extent of the perspiration is commonly regulated by the urgency of the symptoms. Sometimes, however, we see a full intermission, which either puts a stop to the fever permanently, or it may be succeeded by another paroxysm, which assumes the remittent type.

The remission is succeeded by a renewal of all the former symptoms, and they by a remission, and so on. We may remark respecting these remissions, that, as the case goes on favourably or unfavourably, they will be longer and more frequent, or the contrary. If the case terminates favourably, the remissions will become more marked as they succeed every following paroxysm, until a full intermission, or permanent stop of the fever, is produced. And, on the other hand, if it goes on unfavourably, the remissions will become feebler and feebler, until the fever becomes confirmed in the continued type.

When the case terminates fatally, the patient becomes very restless, the pulse small and irregular, the tongue brown or blackish, and very dry, the functions of the brain are disturbed, and the muttering delirium and sub-sultus of typhus set in. These symptoms become worse, and death, by coma or a half comatose state, terminates the scene.

Causes.—All the causes which produce intermittents and remittents are capable of producing this variety of fever. In malarious districts, synochal fever is a very common disease; and, in such as are remarkably so, it assumes a very dangerous form, which is often fatal to those who have not been acclimated to noxious effluvia. In thickly-populated cities and towns, which happen to be comparatively free from marsh miasm and filthy effluvia, it seems that the impure atmosphere of streets swarming with animal life, and badly-ventilated, either from the closeness of the buildings, or from a want of strong currents of wind, has no small influence in producing the synochal fever of these localities. We may add another, namely: the action of solar heat which is called *insolation*, or *stroke of the sun*. Nor is this to be wondered at, since our summer heat is very great, ranging from 75° to 95° Fahr., and that in the shade, and for six months in the year. This, with the very imperfect provision which the Arab dress makes for protecting the head, renders such as are exposed very liable to insolation and fever. Especially is this true of children, whose peculiar state of nervous organs makes them very susceptible

to such influences, and who are, nevertheless, allowed very frequently to roam in the sun.

Treatment.—General bloodletting, the utility and safety of which in fever are so much questioned in other countries, stands foremost among the beneficial and safe remedies which we have observed and tried in almost innumerable instances. And this is the testimony not only of those who have visited warm climates, but it seems to be also the opinion of all those who have expressed their judgment *à priori*. But, while its utility has so much authority, no one can doubt that it may be abused, and thus may be productive of very serious consequences.

Very often, not long after the actual invasion of the febrile symptoms, nature relieves the patient by a full perspiration, and, as human sagacity cannot foresee when such a favourable turn will take place, and when not, we have generally left the case, for the first few hours, to nature, unless its violence called at once for prompt and vigorous measures. When the desired result did not come on after the lapse of twelve hours or more, according to the urgency of the symptoms, we have had the patient bled in the sitting posture to *syncope*, or until a full inspiration could be produced with perfect ease. The result will be, almost invariably, a sensible mitigation of all the symptoms, and, not unfrequently, a free and critical perspiration. When this latter takes place, and the febrile symptoms are completely subdued, the only sure way of preventing a return of all the former symptoms, is the prompt administration of quinia. When the symptoms are simply mitigated, very commonly they soon run high again, and a second bleeding will be frequently necessary. There are very few cases which cannot bear this repetition, or which will not be permanently benefited by it. A third bleeding is sometimes demanded, but great caution will be necessary before deciding upon having it performed. Of course, the sex, age, constitution, pulse, &c., should be considered in all cases where bleeding is proposed, but in third bleedings doubly so.

But bleeding should be limited to the first few days of the disease, not only because it is in the early periods that the fever is very high, but also because the system is exhausted during the middle and last stages of fever, and, therefore, cannot bear the loss of blood. Cases have occurred under our observation where an ill-timed bleeding has been fatal, or, at least, has hurried the fatal termination.

When general bloodletting has only mitigated the febrile symptoms, or when they were slight from the beginning, and a bleeding is deemed unnecessary, we have seen great benefit from the application of leeches to the abdomen. We have been astonished, sometimes, by the sudden relief which was experienced by topical bleeding; and we can remember many critical cases which recovered mainly by this means. The leeches should be applied to that part of the abdomen which feels tender on pressure. Sometimes there is no tenderness at all, but the red tongue, the thirst, and the vomiting have

directed us to apply the leeches to the epigastrium, and with the most gratifying result.

If general bloodletting has not been carried to a great extent, topical bleeding may be repeated several times, until the fever is subdued, or until no more blood can be drawn with safety to the patient. We have observed that, when a sufficient quantity of blood has been lost, and the symptoms remained unabated, the case generally terminated fatally.

But, while we depend on bloodletting in the early stages of synochal fever, as the principal and most potent means for subduing it, we do not neglect the use of other means, very important in their way. Of these, we have much faith in suitable or medicated drinks, and laxative enemata.

If the thirst be great, and the tongue not dry, we have found cold and slightly-acidulated drinks, not only very agreeable to the patient, but also of marked benefit. Lemon juice, tartaric acid, and tamarinds furnish materials for such drinks, among which the taste of the patient may be consulted. We frequently add a small quantity of the sweet spirits of nitre, and a favourite prescription of ours in such cases is the following:—

Acid. tartaric. 3j; sacchar. alb. 3j; aquæ fontanæ libiss. Solve et adde, spt. aether. nitros. 3ij. A small portion to be taken every now and then.

But, when the tongue is dry, and its papillæ rough and red or brownish, we have observed mucilaginous drinks to be much more apt to allay the thirst and moisten the mouth. Quince-seed tea, or barley-water serves the purpose. Sometimes we have united acidulated with mucilaginous drinks, and, perhaps, not without benefit. When ice is to be had, we always allow the patient to take it *ad libitum*, but continuedly, so as not to suffer a reaction to take place; but, during perspiration, or when the chest is affected, we prohibit its use. After all, nothing will quench the thirst so readily and permanently as the application of a few leeches to the epigastric region.

We have always inquired after the state of the bowels; and, when they were confined, an aperient enema was directed, which rarely fails of exciting a moderate evacuation. If the bowels had been long inactive, or when the first clyster was not active enough, it was repeated once or twice every day. If a stronger action is desired, one ounce or more of Epsom salts may be dissolved in half the quantity of a common clyster, and then administered. If there was diarrhoea, we have usually ordered emollient or mucilaginous enemata, according to the frequency and character of the discharges. When it is accompanied by pain, we add a small quantity of laudanum.

It may surprise some of our readers that we do not employ more energetic measures for evacuating the intestines of what is considered by some as a "morbific cause." We are fully aware that "active aperients" are the *sine qua non* of many highly respectable authors and practitioners; but we must say, with all deference to their views, that our fevers cannot bear them. The irritation or inflammation of the gastro-intestinal mucous membrane, which seems always to accompany our fevers, whether it be secondary

or primary in the chain of febrile phenomena, cannot fail to be aggravated by purgatives or any other class of medicines which is prohibited in gastro-enteritis, and, in its turn, aggravate the fever. However orthodox the use of calomel and jalap may be, in my hands, it has rarely failed to make much mischief in this disease. "We believe," says a distinguished author, "that the disciples of Broussais may have carried the antiphlogistic plan too far in fever; but, if they have killed their thousands, the followers of Brown and Hamilton have killed their ten thousands. . . . What is the common treatment of fever? A bottle of wine on the one hand, and a bottle of purging medicine on the other; and this for all fevers and all stages of the fever! We do not wish to be understood as decrying the use of tonics or purgatives in all cases, but we do protest, in the name of common sense and humanity, against their indiscriminate employment. *The experience derived from the treatment of several thousand cases of fever has convinced us of this fact: that in the treatment of this disease, particularly in its early periods, we shall be more certain of advantage from leeching the abdomen, cold drinks, and emollient enemata, than any other treatment whatsoever.*" (*Cyclopaedia of Practical Medicine*, Amer. edition, vol. ii. p. 323.)

We may say the same thing respecting the use of tartar emetic as a sedative in fevers; for the same principle that forbids the use of purgatives, forbids it also. We have used it in one case, and seen it used in two, and the result in the three cases was manifestly injurious: a morbid and obstinate diarrhoea had wellnigh destroyed the life of the three patients. We will not pretend to say that this is competent experience to exclude this article entirely from the list of febrifuge medicines; but, as long as we have reason to remain attached to our idea of the pathology of our fevers, and as long as we remember the result which we have seen from its use, we shall let it alone, and recommend to others, who are practising in this country, to do the same.

To encourage perspiration, we are in the habit of giving small doses of ipecac. and sweet spts. of nitre, and, perhaps, with advantage. When the stomach and intestines did not seem to be much inflamed, we have united to the ipecac. small doses of calomel. A gentle and continued diaphoresis is generally the result. Another expedient which we are in the habit of using is strongly-sinapised pediluvia. By the gentle stimulation which they seem to exercise on the cutaneous vessels, they are sometimes followed by a critical perspiration. Nor is this their only use; for, by determining the blood to the lower extremities, they generally relieve, for a time, headaches and other local pains and congestions. But we have always been careful not to use them when the febrile excitement was high.

Instead of cold affusion and sponging—which have been so much recommended by British physicians, but which the prejudices of the natives will not permit—we have found cooling applications to the abdomen, when it is preternaturally hot, of some service, especially in children. Cold poultices of starch and vinegar, or cloths dipped in diluted vinegar, renewed often, is the

way in which we commonly order them. In the state of perspiration, or when the temperature of the body is felt by the patient to be lower than the natural range, or when there is pulmonary congestion, we always refrain from using them. Under such contingencies, we would rather use warm or tepid emollient poultices applied to the whole abdomen.

Sometimes, the fever becomes chronic, as it were; that is, it drags on for a long time very tediously and obstinately, without coming, or tending to come, to any termination. Very often, in such cases, no local inflammation can be detected, and all the usual means have been used without much advantage. We have employed, in a few cases of this kind, the following formula, and, as far as we remember, always with benefit:—

Pulv. digitalis, pulv. ipecac. $\frac{aa}{3}$ gr. j; pulv. antimonialis gr. ij. To be repeated every four or six hours, until the digitalis shall have produced an impression on the head or pulse.

When typhoid symptoms set in, which happens only in the worst cases, we still continue the antiphlogistic plan; confining ourselves, however, to the mildest measures. In such cases, we very rarely abstract blood, even topically, but our reliance is chiefly upon cooling mucilaginous drinks. At the same time, we use revulsives to a considerable extent; blisters are applied to the extremities, and sometimes, when the brain is affected, to the nuchæ or scalp. We have never ventured to use internal stimulants, except in the worst cases, and, even then, chicken broth is all that we dared to administer. It seems to us that the high degree of atmospheric heat, and the extensively-injected state of the mucous membrane of the alimentary canal, make the use of wines and medicinal stimulants rather imprudent and dangerous. Under the plan which we have hitherto pursued, we have sometimes seen surprising recoveries, quite unexpected either by ourselves or by the friends of the patient.

ART. VI.—*On certain Dumb-bell forms of Crystals found in the Urine.*
By WILLIAM A. HAMMOND, M. D., Assistant Surgeon U. S. Army. (With a wood-cut.)

THE question of the chemical character of the dumb-bell crystals found in the urine, has for some time been a subject of controversy amongst those who have devoted themselves to the microscopical and chemical investigation of this secretion. It was at one time supposed by Dr. Golding Bird, who first directed the attention of the profession to these peculiar formations, that they were a variety of *oxalate* of lime. Dr. Bird has, however, in an article in the *London Medical Gazette*, vol. xi. 1850, p. 700, and in the last edition of his work on *Urinary Deposits*, abandoned his first opinion, and now regards them as *oxalurate* of lime; whilst Dr. Frick, of Baltimore, in the *American*

Journal of the Medical Sciences for July, 1850, p. 23, believes them to consist of uric acid.

Later discoveries have rendered it certain that this crystalline deposit is not peculiar to any one constituent of the urine. Dr. Hassall, in the *Lancet*, vol. ii. 1849, p. 608, calls attention to an undescribed crystalline salt, having a dumb-bell appearance, which he has classed as oxalate of soda, with urea in combination, and in the same *Journal*, vol. i. 1850, p. 177, speaks of the same form of crystal as frequently consisting of sulphuric acid, in combination with soda or potash. In the elegant work of Robin and Verdeil, carbonate of lime is assigned a dumb-bell form, and I am fortunate enough to have in my possession, through the kindness of Professor Bailey, of West Point, a beautiful specimen of this salt from the urine of the horse, many of the crystals of which possess the form under consideration. Several of these are represented in the cut at H.



A, B, C. Natural crystals of urea, chloride of sodium, of Dumb-bell formation.

D, E, F. Artificial crystals of urea, chloride of sodium.

G. Dumb-bell crystals, from the action of sulphuric acid on lithic acid.

H. Dumb-bell crystals of carbonate of lime, from the urine of the horse.

All the figures are drawn with the camera lucida, and magnified 320 diameters.

I desire now, however, to call attention to several forms of dumb-bell crystallization, which I am not aware of having been alluded to by any writer on the subject. During an extended series of microscopical investigations of the urine, I have been struck with the frequent occurrence of dumb-bell crystals, differing in appearance from those of oxalate or oxalurate of lime, or those of uric acid, as described by Dr. Frick. They are thin and transparent; are perfectly soluble in water, and have no action whatever on polarized light. They can often be obtained from the slow evaporation of a drop of urine on a piece of glass, and when viewed with a $\frac{1}{4}$ inch objective, appear as represented by groups A, B, and C, in the engraving.

From experiments recently performed, I am satisfied that their chemical constitution is that of chloride of sodium, in combination with urea. It is well known that this latter substance exercises a remarkable influence in determining the crystalline character of chloride of sodium, changing its usual cubic form to that of octohedrons, daggers, crosses, &c. It therefore occurred to me that the crystals to which I have reference might also be the result of this agency of urea; and, from experimenting with its solution, and that of chloride of sodium, I am convinced that this supposition is correct. If, to a weak solution of common salt, a few crystals of urea be added, and the compound evaporated on a slip of glass, the ordinary dagger-shaped crystals, marked D in the cut, are produced. But, if the strength of the saline solution be increased, or the quantity of urea diminished, crystals resembling those marked E and F are formed. The sequence of changes, and the connection which exists between them, will be readily perceived by the reader, and their similarity to the natural formations, both chemically and microscopically, is too close to admit of much doubt on the subject of their identity of constitution.

I have also noticed that crystals, very similar to those last described, can be produced by placing a few crystals of lithic acid on a glass slide, adding a drop or two of solution of chloride of sodium, and evaporating over a spirit-lamp. By varying the quantities of each substance, the crystals may be made to assume a variety of forms, many of which resemble the dumb-bell. In a future number, I may again allude to this subject.

Dumb-bell crystals can readily be formed from the action of sulphuric acid on lithic acid. The lithic acid should be dissolved in a solution of caustic potash, and to this solution, hydrochloric acid added in excess. After a short time, the lithic acid is precipitated. It should then be thoroughly washed in cold water, and dried at a low temperature. A few crystals should now be placed on a slip of glass, and two or three drops of sulphuric acid added. The mixture is afterwards to be gently heated, till the crystals are dissolved. In a few hours, a multitude of dark spots will be seen, which, viewed with a power of 320 diameters, will be found to bear the appearance of the crystals represented in the wood-cut at G. These, as will be perceived, are scarcely distinguishable from those commonly regarded as oxalate of lime.

I do not wish to be understood as saying that *all* the crystals so produced are of the dumb-bell form. Many of them will appear as flattened spheres. These, however, if they are allowed to remain in the acid for several hours more, generally become united in pairs, the neck which joins them becomes elongated, and they will possess the configuration represented.

I see no reason why, when free sulphuric acid exists in the urine (as it occasionally does), dumb-bell crystals cannot be naturally formed with lithic acid for their basis. Perhaps those described by Dr. Frick were produced in this manner.

It would appear that chloride of sodium does not crystallize in the dumb-

bell form unless in excess, or unless urea be deficient. All the specimens of this deposit having the shape mentioned, were obtained from patients affected with inflammatory diseases, or who had recently been intoxicated. The results are as yet too meagre to afford a basis for a theory, and my only object in at all alluding to the circumstance at present, is to enlist the attention of observers in the matter. It is possible that the salt food forming a part of the ration issued to troops, may be the cause of the comparatively frequent number of instances of this formation coming under my observation.

ART. VII.—*The Relations of the Pulse to certain states of Respiration.*
By S. WEIR MITCHELL, M. D.

THE ingenuity of modern research has left few points unstudied in the history of the pulse. Amidst all this ardent inquiry, the relative activity of the heart and the lungs, have been duly regarded by the numerous inquirers to whom this branch of our science is so deeply in debt. In reviewing a subject of such general interest, it is proper to state, with brevity, the opinions of former writers, in order that no misunderstanding may exist as to the extent and nature of the views which I propose to offer in the following essay.

The mere numerical relations of respiration to the pulse, and conversely, of the pulse to respiration, are so well known as to demand no further notice here. Increased activity in the one, commonly entails a like state in the other. To this general law there is a very remarkable exception, whose insertion at this point is justified by its singular novelty and interest.

The substance of the following observations is taken from an unpublished essay upon the state usually known as the "mesmeric sleep," an abstract of which was read by its author, Prof. J. K. Mitchell, before the Philadelphia College of Physicians, in the year 1839.

Thirty-seven cases of "animal induction," or induced somnambulism, were studied with reference to the relations of the pulse and respiration. The result is briefly stated in the following summary of a very elaborate table:—

Pulse before sleep.	Pulse of sleep.	Respiration before sleep.	Respiration during sleep.
Average: 81.7	Average: 105.	Average: 19.04	Average: 19.68
Difference: 23.3		Difference: 0.64	

The pulse of the mesmeric state was in every instance greater than that of

the waking condition; the least excess being 8, the greatest 48. If one extraordinary case be omitted from the table, the average proportion of the numbers of respirations would be as 18.9 in the waking condition to 18 in the sleep.

While, therefore, the pulse always quickens, the respiration either falls absolutely below the normal waking standard, or undergoes no change. The proportion of the pulse to the respiratory movements was four to one in the waking condition, and nearly five to one in the sleep; an excess of twenty-five per cent. for the mesmeric slumber.

We have long known the effect of inspiration and expiration, upon the blood in the vessels near the thorax, inspiration promoting the flow of venous blood to the right heart, and expiration, in some degree, retarding it.

On the other hand, we have learned but little as to the separate influence of expiration and inspiration upon the heart's action, and still less as to the causes, which, by primarily affecting one or the other heart, finally modify the entire motion of that important organ. Incidental allusions to these points are found scattered through the works of Kay, Alison, John Reid, and Allen Thomson. No one has attempted to fill this gap completely; and much that has been said or done, is wanting in precision, and often inexact as to facts.

Dr. John Reid, of Edinburgh, has pointed out some of these neglected phenomena with more distinctness than any other writer. During many of his vivisections, he remarked that the pulse quickened during laborious expiration, and became slow, for a short period, on the like state of inspiration. His explanation is simple and lucid, and is further sustained by my own researches.

I regret that a necessary limitation as to space, deprives me of the power of stating more amply the views and observations of the writers to whom I have alluded. Their works contain, however, very little positive knowledge, and the reader may therefore be simply referred to their essays upon the pulse, respiration, and asphyxia.

With this short preface, I propose to examine, in the course of this paper, the effect of extreme states of respiration upon the pulse of man.

The fullest recognition of the phenomena in question has occurred from year to year, in the lectures of the Professor of the Theory and Practice of Medicine in the Jefferson Medical College, Philadelphia, where my attention was first called to them.

Prior to a course of systematic observation, I endeavoured to ascertain the effect, upon the pulse, of mental attention to the heart's action. I observed in this condition a slight acceleration of the pulse, but not enough to interfere materially with my results. Prolonged direction of the mind to trains of laborious thought, usually renders the pulse numerically less active; so that, after several hours of intense mental action, I have found that the pulse falls very considerably below its usual number.

The facts, to which I would now desire to call attention, are easily brought within range of the reader's personal experience.

Let a finger be placed on the pulse, and let the chest be held fixed in full inspiration, the pulse will be observed to become less frequent.

Numerous individual exceptions occur, and, in a few cases, negative or exceptional results are obtained. On the other hand, the observer is sometimes alarmed by the long pause between successive pulsations. In one or two cases, I have been forced, on this account, to suspend altogether any further research. Again: let the chest be fixed in a state of extreme expiration, and the pulse will almost invariably quicken.

Persons who are susceptible of these changes, will thus observe that there is a point, midway between these extreme conditions of respiration, at which fixation of the chest fails to affect the pulse. If, starting from this point as the zero of influence, the lungs are slowly inflated to fulness, the pulse will usually beat less and less rapidly. In like manner, during the movement of expiration, the heart quickens its pulsations, and sometimes they suddenly increase to a still greater extent, when a state of complete expiration is attained.¹ In a few rare cases, these changes may be studied in the thoracic movements of those whose natural respiration is excessively long and laborious.

For brevity and convenience, I shall term the two pulses induced by extreme respiratory conditions, respectively, the inspiratory and the expiratory pulses.

Before attempting any explanation of the facts in question, I would call attention to the following brief tabular statement of the changes which *usually* occur under given respiratory states.

LENGTHENED RESPIRATORY MOVEMENTS.

Movement of inspiration: Pulse slow.	Movement of expiration: Pulse rapid.
Fixed inspiration: Pulse slow.	Fixed expiration: Pulse rapid.

The evidence upon which the above statements are founded was derived from attentive examinations of adults, averaging twenty years of age, and seated in easy postures. For most of them, I am scientifically responsible; for others, I have to thank the considerate kindness of medical friends. I need scarcely add, that every proper precaution against error was carefully taken.

I have arranged some of these results in the following table. Forty cases

¹ As, in using the spirometer, it is necessary to learn *how to breathe* before successful results are attained.

will be found thus recorded with reference to their natural pulses, the inspiratory and expiratory changes, and the relative amount of these respective alterations.

TABLE I.

1.	2.	3.	4.	5.	6.	7.	8.
No.	Name.	Natural pulse.	Inspiratory pulse.	Fall of inspiratory pulse.	Expiratory pulse.	Rise of expiratory pulse.	Extreme of difference.
1	P.	83	74	9	87	4	13
2	M.	82	70	12	94	12	24
3	M.	80	58	22	104	24	.46
4	W.	69	65	4	79	10	.34
5	Da C.	74	68	6	80	6	.12
6	M.	73	68	5	87	14	.19
7	H.	73	64	9	81	8	.17
8	R.	87	81	6	93	6	.12
9	J.	95	86	9	109	14	.23
10	L. M.	73	65	8	99	26	.34
11	R. M.	80	67	13	100	20	.33
12	J. M. S.	97	95	2	109	12	.14
13	F.	77	68	9	93	16	.26
14	E. M.	83	75	8	119	36	.44
15	J. S.	88	83	5	110	22	.27
16	K. M.	92	68	24	100	8	.32
17	J.	82	68	14	99	17	.31
18	M.	88	88	0	100	12	.12
19	P.	72	68	4	84	12	.16
20	G.	64	59	5	70	6	.11
21	M.	91	80	11	93	2	.13
22	W.	73	58	15	89	16	.31
23	K.	96	68	28	104	8	.36
24	D.	68	61	7	78	10	.17
25	D.	89	73	16	90	1	.17
26	S.	93	85	8	96	3	.11
27	P.	91	74	17	101	10	.27
28	F.	79	74	5	112	33	.38
29	V.	72	66	6	88	16	.22
30	H.	72	70	2	84	12	.14
31	P.	92	66	26	98	6	.32
32	H.	81	73	8	116	35	.43
33	P.	64	64	0	77	13	.13
34	S.	85	70	15	97	12	.27
35	W.	88	82	6	96	8	.14
36	R.	86	60	26	82	4	.22
37	B.	72	64	8	80	8	.16
38	H.	82	58	24	87	5	.29
39	G.	72	66	6	88	16	.22
40	H.	64	56	8	79	15	.23
	Average	80.5	70.15	10.5	93.27	12.6	23.75

As but few persons can hold the breath over thirty seconds, I have always estimated the pulse of one minute by observations of a fraction of that time.

As a general rule, the highest natural pulses lose, in fixed inspiration, more beats than the pulses of lesser numbers.

Column fifth exhibits the numerical differences between the normal pulse

and that of fixed inspiration. These numbers range from 0 to 46 pulsations per minute.

In like manner, while column sixth gives us the pulse-numbers of expiratory fixation, column seventh exhibits the various amounts by which they exceed the normal pulse of ordinary respiration. Thus, in expiratory fixation, the pulse gained, in certain cases, 24, 36, 35, 33 per minute. In others, the changes were but slight; as, 1, 2, 3 beats only.

In column eighth, will be found the numbers of extreme difference from fixed inspiration to fixed expiration. It is here that we best observe, and most clearly appreciate the nature and extent of the changes in question. No one of the numbers in this column falls below 11, and one attains the limit of 46. In tables of this nature, averages are of minor value; I have, however, stated them at the foot of each column in this and the succeeding tables.

In forty persons, the average normal pulse was 80.5. In fixed inspiration, it fell to 70.15; in fixed expiration, it rose to 93; giving, as the average of extreme difference, 23 per minute.

I have made few records in diseased conditions, yet some of these were very striking; as when, in a case of hypertrophied heart, the extreme of change in the two induced pulses exceeded fifty beats per minute.

In order to learn the effect of prolonging these respiratory states, I selected two cases, those of Nos. 1 and 3, Table I. Both have the power of holding the breath during a full minute of fixed inspiration. The pulse was noted during successive quarter minutes.

CASE 1—TABLE I.

1st quarter.	2d quarter.	3d quarter.
13	14	13
17	17	18
16	18	20
11	13	18
12	13	12

CASE 3—TABLE I.

1st quarter.	2d quarter.	3d quarter.
12	13	17
13	13	14
11	12	14
12	14	13

The expiratory pulse gave similar results, no great change taking place in either case. For a brief period after fixed inspiration, especially in susceptible cases, the pulse rose a few beats, as if by way of compensation. Thus:—

Natural pulse.

66

66

65

64

Inspiratory pulse.

48

44

44

48

Natural pulse of the succeeding minute.

76

72

69

77

The influence exerted by the amount or degree of inspiratory fulness was also tested. The results are expressed in the following table:—

Natural respiration: 74.72	Natural respiration: 67
Moderate fixed inspiration: 68.64	Moderate expiration: 76
Deep fixed inspiration: 57.47	Deep expiration: 84
Profound fixed inspiration: 48.48	Profound expiration: 96

Suspecting that the lung capacity, *i. e.* vital capacity, might regulate the amount of inspiratory fall, in individual cases, I selected two cases, one, whose normal pulse is subject to great diurnal changes, under the influence of functional or other causes, and another of a less excitable nature. Amidst the many variations of this first-named pulse, and in all its inspiratory and expiratory modifications, the vital capacity remained the same.

TABLE II.

Observations on the Diurnal Changes of the Pulse of Case 3, Table I.

No.	Time.	Condition seated.	Natural pulse.	Inspiratory pulse.	Fall of inspiratory pulse.	Expiratory pulse.	Rise of expiratory pulse.	Extreme of difference.
1	3½ P. M.	Digesting	108	59	49	120	12	61
2	2 A. M.	Mental labour	74	52	22	92	18	40
3	7½ A. M.	Fasting	68	51	17	85	17	34
4	9 A. M.	Digesting	79	56	23	96	17	40
5		Mental labour	63	52	11	88	25	36
6	4 P. M.	Digesting	76	52	24	92	26	40
7	1½ P. M.	Fasting	72	49	23	83	11	34
8	10½ A. M.	Digesting	64	52	12	92	28	40
9	10½ P. M.	Fasting	76	49	27	99	23	50
10	12 P. M.	"	65	44	21	88	23	44
11	12½ P. M.	"	76	49	27	91	15	42
12	1 A. M.	"	74	50	24	89	25	39
13	11 P. M. {	Fasting after exercise	88	55	33	96	8	41
14	11½ P. M.	Fasting	80	52	28	96	16	44
15	3 P. M.	Digesting	83	56	27	104	21	48
16	11 P. M.	Fasting	74	48	26	92	18	44
17	11 A. M.	After exercise	82	52	30	96	14	44
18	2 P. M.	Fasting	70	46	24	90	20	44
19	3½ P. M.	Digesting	80	55	25	104	24	49
20	4 P. M.	"	84	55	29	96	12	41
21	7½ P. M.	"	81	52	29	97	16	45
22	3 A. M.	Mental labour	68	47	21	84	16	37
		Average	76.59	51.5	25.09	89.54	18.40	42.59
		Vital capacity	287	cubic inches.				
		Height	5 feet 11½	inches.				

TABLE III.

A Table of the Diurnal Variations of the Pulse of Case 21, Table I.¹

Time.	Condition.	Natural pulse.	Inspiratory pulse.	Inspiratory fall.	Expiratory pulse.	Expiratory rise.	Extreme of difference.
2 A. M.	Fasting	72	60	12	80	8	20
12 A. M.	"	68	60	8	83	15	23
1 A. M.	"	63	56	7	80	17	24
4 A. M.	"	71	63	8	79	8	16
11 P. M.	"	72	61	11	79	7	18
12 M.	"	69	58	11	76	7	18
1 A. M.	"	70	60	10	79	9	19
3 P. M.	Digesting	70	62	8	84	14	22
3 P. M.	"	72	64	8	79	7	15

I have not seen that the varying amount of change in the induced pulses of different men, had any appreciable connection with the extent of their vital capacities. There are short men, of great vital capacities, whose pulses remain unchanged during fixed inspiration, and I have met with tall men of uncommonly small vital capacity, whose pulses fell unusually in that state of inspiration. Certain remarkable facts may be deduced from the last two tables; and, as they have a bearing upon the explanation of the induced pulses, I shall briefly refer to them before proceeding further.

Besides the remote influences which affect the heart through its nerves, it is liable to the more sudden and immediate stimulation of the afflux of large amounts of blood, as in muscular exertion. It also seems probable to me that the heart may be mechanically stimulated, during life, by violent motion, and in other ways to be explained in future.

Owing to these numerous agencies, the heart is "set," as it were, to a certain beat, or number of pulses. The force and frequency of these express, at any one time, the temporary necessities of the body. We shall then observe that any new stimulus will act on the heart, with a power greatly modified by the existing conditions of that organ, and by the demands upon its activity. I believe that this is also true of the effects of depressing agencies. Thus, in Table II. the lung capacity remains the same throughout, and the same amount of air is taken in during fixed inspiration. Yet all the pulses do not suffer an equal amount of depression during inspiratory fixation. A very low pulse, as that of prolonged mental labour, falls but little. The pulse of high number can sink no lower than the previous systemic regulation will permit. This is admirably illustrated by the effects of digitalis. When a patient, who is fully under its influence, stands up, there are new demands upon the heart's activity, and accordingly, when in this position, the pulse fails to show the influence of the remedy. If, now, the recumbent posture be assumed, the number of heart beats falls to a disproportionate extent. It thus happens, that in every pulse, we may observe the existence

¹ The observations are by Dr. G. R. Morehouse.

of a certain numerical limit. This varies in individual cases. That of Case 3, Table I. is very ample, and reaches from 44 to 120. Consistently with health, it does not fall lower than 44, while only a most unusual stimulus can raise it above 120. It may also be observed that the boundary is more definite in the direction of depression, than of stimulation.

Accurate and prolonged study of any one case, will acquaint us with the extent and limitation of this pulse range. The rapidity and ease with which the pulse alters within these boundaries, is fixed and regulated by numerous circumstances, such as primitive construction, habit, and temperament.

The points thus briefly dismissed, are matters of daily practical recognition, yet they do not seem to have received sufficient consideration in the pages of medical science. Perhaps tables of the pulse range would be of greater value than the pulse tables, as usually constructed.

After very careful study of all the phenomena, in many experiments and vivisections, I feel disposed to refer the induced pulses of extreme respiratory states, to causes chiefly physical.

I confess to some pleasure in thus placing these interesting facts within the domain of the laws of dynamics. This pleasure is at least not lessened by the knowledge that I am indicating a new region for research, and that many of the points in question have hitherto escaped the eager reach of physiological induction.

The present state of knowledge in this direction, is best illustrated by the following quotation from a standard text-book, of the highest character:—

“The pulmonary circulation is unaffected by atmospheric pressure, and is not exposed to the influence of the pressure of muscles. The force by which it is accomplished, and the course of the blood, are alike simple.” (*Kirke's and Paget's Handbook of Physiology*, p. 132, 2d Am. ed.)

I have repeatedly observed, in rabbits, the phenomena recorded by Reid, the pulse becoming slow during inspiration, and fast during expiration, when those movements were long and laborious. Animals may be forced to breathe thus, and in fact, I have sometimes noticed similar phenomena in man. They have been in part explained by Reid. He believed that, during dilatation of the lung, the flow of blood from its spongy tissue was necessarily lessened. The left heart would thus receive a smaller share of blood, and would, therefore, contract less often.

During expiration, a portion of blood, as well as the air of the lung, is expelled; this blood, moving in the tide of circulation, enters the left heart, and compels it thus to contract often enough to get rid of the overplus of fluid. Hence a more rapid pulse.

Fixed Inspiration.—When the lung is fixed in the state of complete expansion, new dynamical relations arise, and the pulse becomes slow.

If a number of minute elastic tubes are imbedded in, and coiled about the walls of, a caoutchouc bag, the arrangement will represent, well enough, an air-cell of the lung, and its surrounding vessels. If the bag be then inflated,

or its walls otherwise stretched, the small tubes will be lengthened and lessened in area. This may be done by inflation, or, as in the lungs, by expanding agencies, acting from without. In either case, the gum bag will be expanded, so as to affect indirectly the caliber of the small tubes.

During inspiration, air rushes into the air-vesicles with great facility. If the dilatation thus made be excessive, the capillary vessels of the lung are stretched, and perhaps, in some cases, subjected to pressure. Circulation will be thus impeded in those most minute pulmonary vessels, which are wrapped around the air-cells. In order to test these views, I resorted to the following means. After many failures, the ingenuity of my friend, Dr. Da Costa, suggested a method by which I was enabled to procure a sheep's lung in such condition as enabled me to pass through its vessels a stream of fluid. To effect this object, we injected carbonate of soda into the pulmonary vessels of a living animal, as far as their resistance permitted; after which, the whole of the thoracic viscera were removed from the animal, and placed in a solution of the salt just mentioned.

After many failures, I thus procured a lung to which I adapted the following simple arrangements: A long glass tube, half an inch in diameter, was fitted within the mouth of the pulmonary artery; a similar tube was secured within the mouth of the pulmonary veins, or, rather, within the left auricular opening; a third short tube, with a stopcock, commanded the opening of the divided trachea.

Thus prepared, diluted serum was poured into the pulmonary artery tube. After a few moments, the lung vessels became full, and the bloody water was seen rising in the pulmonary vein tube. As this took place, I inflated the lung through the tracheal tube. Under these circumstances, the fluid fell somewhat in both tubes, and most in that of the pulmonary artery—probably, because the lung vessels on that side were most easily filled by the injection. When the inspiration became forced, and permanent, the flow of fluid through the lung became very slow, and, in some instances, ceased altogether. When the stopcock of the tracheal tube was turned, and expiration was allowed to occur, the column of fluid in the tube of the pulmonary artery, invariably fell. This it continued to do, under any, and every extreme of expiration which circumstances permitted, and until the two columns reached a level. I may state that these experiments were amply satisfactory to the gentlemen who observed them, and who aided me in their execution. The sole difficulty is in preparing the lungs so as to admit of the free passage of serum. The amount of pressure exerted by a column of serous fluid, demands also some regulating care, since the experiment is often interrupted by a burst of fluid from the vessels into the bronchi and trachea.

Not feeling quite sure that my results were fully applicable to the living body, I sought to obtain further and more satisfactory proofs of their vital reality. After several fruitless efforts to apply the haemodynamometer within

the tide of the pulmonary circulation, I attained the desired ends in a very simple and novel manner.

I observed that the exposed lung of an animal, kept alive by artificial respiration, flushed as it shrunk in expiration. This is possibly due to the closer aggregation of the capillaries. It might also be caused, in part at least, by an actual increase in the amount of blood, which the most minute vessels contain during complete expiration. Indeed, the extreme pallor of the surface of the lung, in deep inspiration, gave some weight to this idea.

To test these inferences, I opened a rabbit, and, while artificial respiration was made, I carefully scratched through the pleura with a cataract needle, thus wounding the capillary vessels of the living lung. The lungs were fully dilated while I effected this, and, to my surprise, scarcely a drop of blood followed the instrument. As the lungs fell in expiration, the wound began to bleed—always bleeding most freely in complete expiration. This experiment was repeated many times, in the presence of Drs. Brinton, Morehouse, and Da Costa, and always with the same result, so long as we took care to injure no large vessel. The inference seems to me a fair one, that, in full inspiration, the capillary circulation of the lungs is somewhat impeded. If this be so, then, in fixed and complete inspiration, the left heart will, for a time, receive less blood than usual, and the excess will exist in the right heart and pulmonary artery. Is this the cause of the slow pulse of full inspiratory fixation? Some light is cast upon the subject by a study of the phenomena of asphyxia. In that condition, the heart beats slowly, as soon as the circulation begins to be arrested in the minuter vessels of the lung. The conditions are then to some degree alike—too much blood on the right side, too little on the left. Without doubt, the slow pulse of asphyxia is also due, in part, to other causes, but the circumstances I have named have always been admitted to exert a large share in the phenomena in question. While offering this as a partial, and, I admit, not a wholly satisfactory account of the pulse change in inspiration, I do not mean to exclude the element of reflex nervous impression.¹

Finally, in sudden and violent muscular exertion, the right heart receives for a moment an excess of blood; yet, in this case, it beats more rapidly. In inspiratory fixation, there is also a surplus of blood in the right heart; but, in this instance, it is a *reflux* of fluid which congests the pulmonary arteries. We have also, in inspiratory fixation, the other additional element of deficient supply to the left heart. We have no further means of estimating the relative effect of these several sets of conditions to which the two hearts may be subjected.

In fixed expiration, the pulse rises. I believe this to be owing to three causes.

¹ Weber has assured us that galvanic irritation of the medulla oblongata, or of both vagi, retards the heart's movements.

First. In expiration, the lungs contain enough of air to allow of the freest circulation, until asphyxia ensues.

Second. The muscular exertion requisite for perfect expiration is one-third greater than that necessary for deep inspiration, and, as we well know, muscular action quickens the pulse.

Third. It appears possible that, during profound expiration, the heart may be mechanically stimulated by the pressure of the other thoracic viscera.

If, during life, the lungs are made to press upon the heart of an animal, the pulse becomes rapid, as it does when grasped by the hand of the vivisector. We shall see further occasion to rely upon this explanation as the true one.

At the close of inspiration, the air of the lungs is in equilibrium with that of the external atmosphere. If, while the lung is thus filled, we make an effort to expire, and at the same time close the glottis, or expire against a heavy column of mercury, the thoracic viscera will be compressed by the action of the muscles of expiration. Under these circumstances, the slow pulse of full inspiration, quickens, but not usually enough to neutralize altogether the depressing influence which the full lungs exert upon the heart's movements. The effect is best observed in susceptible cases. It may be due partly to increased muscular action, and partly to the pressure just now alluded to. Occasionally, I have met with persons who could not hold the chest in a state of fixed and passive inspiration, or who could only retain the air by compressing the nostrils and closing the mouth. Such cases are usually exceptions to the rule of the slow inspiratory pulse. I have as yet only hinted at these exceptional instances. In some of them, the pulse of fixed inspiration, at first slow, becomes very soon more rapid than the normal standard. In other cases, the pulse of inspiration obeys the law at one time, and becomes exceptional at another—as in fever. The cases of exception do not exceed one in twelve, and the law of a rapid pulse in expiration is almost without exceptions.

Besides these considerations, there are doubtless individual peculiarities in the cardiac appreciation of stimuli. For example, during fixed inspiration, in some men, the influence of compression may be such, and so great, as to counterbalance the depressing agency of an interrupted or delayed pulmonary circulation. The whole subject is well illustrated in the effect of a vacuum upon the pulse of an isolated yet active heart. As a rule, the frog's heart ceased to act when placed under an exhausted receiver. Sometimes, and in some hearts, no change could be thus induced, and once, I saw the heart of a sturgeon, actually accelerating its movements, when in vacuo.¹

Many applications of an interesting character will strike the intelligent reader, in connection with the facts of the paper I am about to close. Assuming the facts as correct, and the explanations as truthful, the following illustrative inferences must claim a share of attention:—

¹ See T. H. Bache and the author, in Dunglison's Physiology, vol. ii. p. 150.

1. It seems to me clear enough, that the pulmonary circulation is modified by the various conditions of respiration in which the lungs may be placed. Do not relatively similar effects attend every respiratory movement, however simple? We cannot demonstrate this upon the healthy living lung, yet the inference would seem to be a fair one.

2. During complete inspiration, the tide of blood is momentarily retarded in the capillaries of the lung. Aeration of the vital fluid then takes place with the greatest facility; and during expiration, and more especially in complete expiration, the blood thus fully aerated is expelled from the lungs by the rapidly acting heart. In other words, the circulation in the lungs is slower when these organs contain most air, and becomes most easy and rapid during the movement of expiration.

The effect of respiration, in mechanically diverting the blood from the course of the foetal circulation, is also of interest in this connection.¹

At this point I shall leave this interesting subject. If I have failed to observe correctly, or to reason justly, I shall at least have called to the task more careful observers, and more able thinkers.

In the course of this paper, I have avoided detailed accounts of individual vivisections, preferring rather to state results than to overload my pages with useless matter. Many of the vivisections alluded to were made by the skilful hands of my friends, Drs. Morehouse, and Brinton, aided by our private pupils, whom I desire to thank for their kind and ready aid.

ART. VIII.—*Iodine Injections in Leucorrhœa.* By THOS. T. RUSSELL,
M. D., Pattersonville, La.

It is not my design, in this communication, to enter into any theoretical inquiries respecting the nature of leucorrhœa, or the *modus operandi* of the remedy I propose for its cure; my object being simply to give the results of my experience in relation to iodine as a remedial agent in this obstinate, and in many cases, intractable disease; and in doing which, I shall record facts, well assured that one well-attested fact contributes more to the advancement of the science of medicine than three-fourths of the theories to which the press has ever given publicity.

I consider this disease to consist in inflammation of the vagina or the internal cavity of the uterus, or of both; and in the majority of those cases which have continued for a number of years and resisted the ordinary modes

¹ During profound inspiratory fixation, nasal hemorrhage is lessened, and sometimes completely arrested. Baurdon, *Récherches sur la Mécanisme de la respiration et sur la circ. du Sang.* Paris, 1820.

of treatment, ulceration to a greater or less extent will generally be found to exist. For this condition, I have found no remedy equal to iodine; and, in illustration of its effects in my hands, I will briefly detail several cases from a number that have come under my observation:—

CASE I.—In July, 1848, I was requested by Mr. W—, to visit Grace, a favourite mulatto servant, aged about 48 years, who, he informed me, had leucorrhœa of twelve years' standing; had been under the care of a number of physicians during this period, and had been subjected to a great variety of treatment, but without avail. I found her confined to bed, very much debilitated and emaciated, face cadaverous, pulse quick and feeble, skin cool, urine scanty, severe pains in the lumbar and pelvic regions, and œdema of the lower extremities. The vaginal discharge often escaping by gushes, was excessive, and her general health had become seriously involved from the effects of this long-continued drain to the constitution. Upon examination per vaginam, the vagina, os, and cervix uteri were found to be in a sub-inflamed condition, and depuded of epithelium. The os was partially everted, and when deprived of its adherent mucus, presented a vermillion colour. The external cervix was enlarged, indurated, and ulcerated. The body of the uterus was sensibly enlarged, and descended within two inches of the os externum. The secretions from these several parts varied essentially in character, and when discharged externally resembled somewhat, in quantity, consistence, and colour, the yolk of an egg intermixed with purulent and sanguinolent matter, and all blended in a thick, opaque, tenacious plasma.

Ascertaining that she had never used iodine in any form, and believing it would afford her relief, I ordered the aqueous solution of the following strength to be thrown up the vagina twice daily, and retained several minutes, the parts being previously well syringed with warm water and castile soap, and the patient placed in a horizontal position with the hips elevated:—

R. Iodini gr. i; potass. iodid. gr. ii; aquæ pluvialis $\frac{3}{i}$. M.

As this solution ceased to create any sensation of warmth or excitement in the parts, it was gradually increased to treble its strength. The muriated tincture of iron in the proportion of twenty drops three times daily was given as a tonic.

Under this treatment, with a nourishing diet, she soon began to improve; the irritated condition of the parts gradually subsided, the muco-purulent discharges by degrees ceased, the cervical ulcers regularly healed, and at the end of three months from its commencement, she had regained her health and strength to such an extent as to enable her to resume her occupation as cook to the family. I may add, that her mammae, which were very small and flaccid, became full and enlarged while under the influence of this medicine, and for several weeks secreted rather copiously a brownish watery fluid. This secretion being tested with starch, produced the characteristic blue color, showing that the iodine was absorbed.

CASE II.—August, 1848. Mrs. W— consulted me; she was aged 19, small and delicate figure, had been married four years, and dates the commencement of her present "weakness," to an abortion which occurred about six months subsequent to her marriage. Prior to marriage she was remarkably healthy and active. At the time I saw her, she was anemic and emaciated, countenance chlorotic, eyes sunken, pulse feeble, menstruation painful, and either scanty or profuse. The vaginal discharge was constant and copious, muco-purulent, slightly streaked with blood, and very offensive. An

examination, with the speculum, revealed an irritated condition of the vagina, with relaxation and loss of its natural rugæ, and accompanied by a partial displacement of the uterus. The cervix was enlarged and indurated, with several ulcers upon its external surface. She had never submitted to medical advice, contenting herself with the use of some simple domestic remedies. Correcting the torpid condition of her liver by means of the usual remedies, I prescribed the aqueous solution of iodine and the muriated tincture of iron as above, recommending a nourishing diet, with free exercise in the open air.

She gradually improved under this plan of treatment, and in a few months her general health was re-established. She has, I understand, continued well ever since.

CASE III.—*October, 1850.* Mrs. G—, æt. about 27, large frame, mixed temperament, five years married, but has never been pregnant. Says that she was never "sick" previous to marriage, but subsequent thereto has always been in "delicate health." Has enlargement and induration of the liver and spleen, sequelæ of intermittent fever, menstruation irregular and profuse. She was sallow and exsanguined, and exhibited, in a great degree, that long train of symptoms consequent upon an obstinate and protracted leucorrhœa. The vaginal discharge was constant, but variable in quantity and quality. Occasionally, it was thin and acrimonious, often viscid and scanty, but usually purulent or muco-purulent, and excessive. The cervix was soft and tender to the touch, and when seen by the speculum was found enlarged and presenting a dark grayish appearance. The os was patulous, with tumefied edges, and of a reddish tint. A slight abrasion was found on the posterior lip.

Astringent vaginal injections—as the nit. argent. acetat. plumbi, &c., were advised, and to relieve the enlarged and indurated condition of the liver and spleen, I prescribed the following:—

R. Prot. iod. mer. 3*i*; pulv. aloes 3*iss*; ext. hyoscyami 3*i*. M. Div. in pilulæ xxiv. One pill to be taken every night; at the same time five drops of nitro-muriatic acid in a wineglassful of the infusion of gentian, three times daily, was administered. Under this treatment, the visceræl derangements totally disappeared in about eight weeks, and her general health was greatly restored.

The leucorrhœa still continuing (no benefit having resulted from the use of astringent injections), and no amelioration in the condition of the parts being found on a second vaginal examination which was now made, I ordered the aqueous solution of iodine and the muriated tincture of iron as above recommended. In six weeks after using these remedies, she declared herself well; shortly afterwards became pregnant, and was in time delivered of a fine healthy child.

Other cases could be adduced to prove the remedial powers of iodine as a local remedy in leucorrhœa, but as they are somewhat similar to the above in all essential particulars, it is unnecessary to introduce them here. Regarding the disease as being essentially a local one, our mode of treatment is principally local, and applied by means of a proper syringe to the parts affected. The preparation should at first be made weak, and gradually strengthened as the parts become accustomed to its application. The mildest preparation is frequently disagreeable, and sometimes painful, but these sensations are only momentary.

We have used it varying in strength from one to four grains of iodine with double the quantity of the iodide of potash to an ounce of water. It may be applied once or twice a day, or once every second or third day, as occasion may require. In some of the severer forms of this complaint, attended with considerable abrasion and ulceration, the diluted tincture may be used with great advantage.

Its curative powers are far greater than the nitrate of silver, which, in our hands, often seemed to exasperate the complaint, or any other remedy with which we are acquainted.

As an internal remedy in leucorrhœa, iodine has been recommended by Goden, Broglie, and other continental physicians; but in our hands, notwithstanding the genito-urinary organs appear to be most susceptible to its action, it has proved of little or no value; our experience with it, in this respect, coinciding with that of Eberle, Barbour, and others of our own country.

Müller, Gimelle, and Jewell applied it in the form of ointment to the inner sides of the thighs with success, and are advocates for it.

We have never seen or heard of iodine being used as recommended in the foregoing, and do not know whether there is any originality in it; neither do we care; our object being simply to call the attention of the profession to it, with the hope that they may be so far influenced by our humble testimony in its favour as to be induced to give it a fair trial. If so, and it proves but half so successful in their hands, in relieving their fair patients of an obstinate and disgusting disease, as it has done in ours, we shall feel amply rewarded for the little trouble this paper has cost us.

NOVEMBER, 1853.

ART. IX.—*Gastrostomy twenty-one hours after Rupture of the Uterus; Removal of a Dead Child from the Abdominal Cavity, with a Successful Result.* By JOHN T. GILMAN, M. D., Portland, Maine.

MRS. HICKEY, an Irish woman, aged about thirty years, of small stature, spare habit, and delicate constitution, was taken with labour pains; her third confinement, early in the morning of September 24, 1853. Her previous labours were severe and protracted, especially the second, when the child was taken with forceps, while the mother was suffering with puerperal convulsions.

Her physician, on the present occasion, informed me that he was called at 10 A. M.; labour pains were then frequent and regular; the os uteri sufficiently dilated to admit the end of his finger; the membranes entire; the head presenting. Her pains increased in strength and frequency through the day, although they accomplished but little; the os, at 9 P. M., being rigid, and dilated only to the size of a quarter of a dollar; the head remaining in the superior strait.

At 11 P. M., after a pain of great severity, the patient complained, sud-

denly and urgently, of great abdominal distress; and there was an entire cessation of uterine pains. He, believing labour was suspended, and that his services would not be required for the night, left his patient at 12. He was summoned again at an early hour in the morning, and found her free from uterine pain, but having the same indescribable abdominal distress. Considerable flowing had occurred, and she was somewhat exhausted. On examination per vaginam, the presenting part was found to have receded—the head could not be felt. He administered stimulating drinks and ergot in repeated doses, with the hope that they would excite uterine action. Failing to accomplish this, and conscious that something of a serious nature had occurred to his patient, he called Dr. Durgin, of this city, in consultation. After making a careful examination, Dr. D. suspected that the uterus was ruptured, and the child had escaped into the cavity of the abdomen.

I was called to the case late in the afternoon of Sunday, with Drs. Daveis, Thomas, and Le Prohon. We found a rent of the uterus, extending from the os upwards and backwards, and the organ itself firmly contracted. No part of the child could be felt. The abdomen was enormously distended, and so tender that she could not bear the slightest pressure upon it. She was in great distress, and entreated earnestly for relief.

The deplorable situation of the patient was faithfully represented to her and her friends, and the operation of gastrostomy proposed as affording the best, if not the only chance of recovery, which was readily assented to.

The patient was removed from her bedroom to a spacious adjoining chamber, the temperature of which had been raised to about 80°, and placed upon a mattress resting on two firm tables. Pure sulphuric ether was first administered, but failing to produce its anesthetic effect, chloroform was substituted, and the patient soon brought under its influence.

The water having been drawn from the bladder by the introduction of a very small gum-elastic catheter, assisted by the gentlemen before mentioned, I made an incision through the abdominal parietes, commencing an inch above the umbilicus, and extending down along the inner edge of the left rectus muscle to within an inch of the pubes. The back of the child presented to the parietes, the head resting on the pubes.

The abstraction of the child and placenta was soon accomplished; coagula, and the fluids effused into the cavity of the abdomen, were expelled through the aperture. The divided surfaces were carefully brought together and secured by ligatures and adhesive straps, and a wide flannel swathe placed around the abdomen. The child was of large size and well formed, and had remained doubtless in the abdominal cavity from 11 P. M. Saturday, till 8 P. M. Sunday—a period of twenty-one hours.

The patient soon recovered from the effect of the chloroform, and expressed herself as being entirely free from distress, and not feeling so much exhaustion as after her previous confinements; and, indeed, the vital powers did not seem so much depressed after as before the operation. An opiate was administered, and our patient, hopeful and happy, was left in the care of faithful attendants for the night.

Monday morning, 26th. Patient slept well; free from pain; but little tenderness or fulness of the bowels; pulse 90, with good expression of countenance; evening, the same.

Tuesday morning, 27th. Pulse, 95; slept part of the night; abdomen more swollen and tender; directed an enema of castor-oil and the oil of turpentine, and the application of strong mercurial ointment to the abdomen, covered with oiled silk.

Evening. Enema operated well, and gave sensible relief.

Wednesday morning, 28th. Passed a sleepless night; increased abdominal swelling and tenderness; pulse 105; increased thirst; regurgitation of drinks from the stomach. Evening. Thirst and fever augmented; bowels tympanitic, with almost constant surging of wind, and regurgitation from the stomach.

Thursday morning, 29th. Passed a very restless and uncomfortable night; pulse 112, with increased tympanitis, tenderness, &c.; regurgitation of yellow bile; sufferings augmented by bronchial irritation and cough. Directed an ounce of castor-oil to be given with a drachm of oil of turpentine. Evening. Cathartic operated powerfully, and with great relief to the patient; pulse 105; bowels softer, and less tender; all the symptoms better.

Friday morning, 30th. Had a good night, with some quiet sleep; pulse 105. In the afternoon, all the distressing symptoms before enumerated returned with increased severity, and continued till 10 P. M., when a spontaneous diarrhoea came on, with very decided relief to the patient.

Saturday morning, Oct. 1. Pulse 100; diarrhoea continues; symptoms more favourable; patient pronounces herself better.

Sunday morning, 2d. Patient better; diarrhoea continues, but not to such a degree as to require any interference.

Monday morning, 3d. A decided improvement in every respect; all the symptoms highly favourable.

The patient continued to improve daily. The mercurial ointment was discontinued on the tenth day, having made a decided impression upon the system. The external wound, at that time, had united at several points, and presented a healthy appearance. The convalescence was rapid and uninterrupted. The patient was able to sit up on the fourth week, to walk about her chamber on the fifth, and to resume her domestic duties on the seventh.

At the present time, more than four months since the operation, Mrs. Hickey is in excellent health, and fully competent to discharge all the duties—laborious as some of them are—which belong to her humble condition in life.

In conclusion, I would briefly state that, in the treatment of this case, the mercurial impression was chiefly relied upon in its controlling effect upon inflammatory action. Opiates, in some form, were daily administered, and repeated as often as the comfort of the patient required them. The diarrhoea, which I attributed, in a great degree, to the action of the mercurial ointment, superseded the use of cathartics. Perfect quiet and rest were enjoined, and strictly observed. The diet, for the first two weeks, consisted of mucilaginous drinks, and occasionally of weak table tea. She afterwards partook freely and with great relish of grapes, and, on the twentieth day, of weak animal broths.

To my friends, Drs. Daveis and Thomas, I am greatly indebted for very valuable assistance rendered at the time of the operation, and during the subsequent treatment.

ART. X.—*Case of Puncture of the Bladder through the Symphysis Pubis.*
By D. LEASURE, M. D., New Castle, Pa.

ON the morning of the 15th of July, 1853, I was called to Mr. P., aged 72, of Neshanock Falls, who laboured under retention of urine.

Mr. P. has had for some years stricture of the urethra, and on several occasions resort was had to the catheter, the introduction of which, I believe,

was attended by no difficulty or inconvenience, though I have no personal knowledge of the case previous to my present visit.

Yesterday evening he was suddenly seized with retention of urine, and after waiting and trying such domestic remedies as had given relief on former occasions, he sent for his family physician, Dr. S. POPINO, of New Wilmington, who remained with him during the night, and made repeated attempts to pass a catheter, but, failing in all his efforts, he sent an express for me, with the warning that I should come prepared to puncture the bladder. I found the patient at nine o'clock in the morning of the 15th suffering extreme pain, and making frequent and violent efforts to void his urine, but unsuccessful in every instance.

The bladder was enormously distended, rising up nearly to the umbilicus, and, in short, presenting all the most urgent symptoms of a case of imminently dangerous retention. Dr. POPINO and myself again resorted to all the measures within our reach, before adopting the ultimatum of puncturing the bladder, a measure to be doubly deprecated on account of the age of our patient. In attempting to pass the catheter, we found difficulty, from a stricture about an inch from the orifice of the urethra, and from another about two inches further in its course, and from enlarged prostate. By care and patience, and cautious manipulations, we could pass the two former points, but by no amount of perseverance could we pass the instrument beyond a point immediately behind the prostate. By introducing a finger into the rectum, we could distinguish and guide the instrument past the prostate a very short distance, and no farther; owing, possibly, to the extreme distension of the bladder having dragged its neck upwards so as to change materially the anatomical relation of the parts, and thus prevent the introduction of any instrument, without resorting to unjustifiable violence. We bled the patient, *ad deliquium*, while in a hot bath, and then attempted to pass the instrument, but here we also failed, and, after exhausting all our resources, we decided to tap the bladder. This we had finally consented to do at the urgent solicitation of the patient, a man of more than ordinary nerve, and what is better, good common sense.

He was well aware of his desperate situation, and knew the dangers of the proposed means of relief, but there was no hesitation as to what should be done under the circumstances. For reasons not necessary to be entered upon here, I decided on the puncture through the symphysis pubis, and while the patient lay on his back, having carefully shaved the pubis, I introduced a thumb lancet through the skin and cellular tissue down to the symphysis; then taking the small common hydrocele trocar, with its canula, I passed it from a point about three lines above the centre of the arch, in a direction, pointing towards the promontory of the sacrum, with a slightly boring motion, after the manner of boring with a carpenter's sprigging awl, until, from having ceased to meet with any resistance for the last three-quarters of an inch, I felt secure the instrument was fairly in the bladder.

On the withdrawal of the trocar, the urine spouted out through the canula to the height of three feet; so great was the pressure from the walls of the distended organ. We drew off four pints in this way, and the patient expressed himself as being entirely relieved. We did not think it prudent to attempt to pass a sound at this time, but placed a little wooden plug in the canula, and left it, with directions to withdraw the plug every two hours, and allow the accumulated urine flow to out. The patient took eight grains of Dover's powder, and was left till morning.

16th. Patient passed a comfortable night. The urine was drawn off, by

the canula, several times during the night, but for the last six hours no urine would flow on the withdrawal of the plug, and the bladder was again distended and painful, with constant desire to micturate. We now attempted to pass a sound and catheter, but failed at the same point where we failed yesterday. I now passed a silver probe down through the canula, and found that the lower end of it had become plugged up by the mucous membrane of the bladder, which acted after the manner of a valve, and prevented the urine from passing out through it.

I passed a silver wire, doubled on itself, down through the canula, when the water was discharged through the space between the wire, but not in sufficient quantity to give speedy relief. I then passed the probe through the canula, and found the distance from the end of that tube, in the bladder, to the posterior wall of the viscus, to be two inches and a half. Withdrawing the probe, I introduced the trocar home, and pushed it, with the canula, an inch farther; and, on the withdrawal of the trocar, the urine flowed freely as before. After permitting one pint to pass off in this way, I attempted the introduction of a small sound through the urethra, and succeeded without any difficulty. I then withdrew the sound, and introduced a small elastic catheter, through which the urine passed guttatum. Withdrawing it, I passed a medium-sized elastic catheter, through which two pints more of water passed off. We now secured the catheter in the bladder, and withdrew the canula, after having remained twenty-six hours. A plug was placed in the free end of the catheter, which we directed to be taken out every two hours, to permit the urine to flow off, so as not to distend the bladder. The wound made by the trocar gave no pain, and was dressed by a little bit of isinglass plaster.

17th. Patient very much relieved; passed a comfortable night, and has some appetite this morning; urine has been drawn off every two hours. The wound made by the trocar looks well; gives very little pain, and no urine has passed out through it. The catheter was withdrawn, and a fresh one introduced, as the urine had partially dissolved the gum of the one used, and a somewhat troublesome experience has taught me that a partially dissolved gum-catheter is not quite a fit instrument to leave in an already irritated urethra. The catheter was left as before, and a laxative of castor oil ordered at night, to be repeated in the morning, if necessary.

18th. Patient doing well; had a good night, and oil operated twice this morning; urine has been drawn off several times during the night, and every two hours to-day. No pain or inconvenience at the seat of the puncture, which looks healthy, and the patient expresses himself as feeling quite well indeed. After allowing the urine contained in the bladder to pass off through the catheter, it was withdrawn, and left out until the return of Dr. POPINO, six hours afterwards; when, as no urine had passed, he introduced it, and emptied the bladder. The catheter was withdrawn and left out, with directions to a son of the patient, a gentleman of much intelligence and considerable ingenuity, to pass the instrument if his father should not succeed in micturating after two or three trials.

19th. Patient continues better; his son has drawn off the water twice since our visit yesterday, and there were not more than six ounces each time. He feels a disposition to urinate now, and not being able to accomplish it, the catheter is again resorted to, and about six ounces of urine drawn off. The wound in the pubis appears to give no inconvenience; indeed, he never seems to think of it, unless he is asked about it.

He now drew our attention to a soreness and enlargement of the right testis, which, he says, annoyed him for some time previous to the accession of his

last trouble, as he calls his retention. He says that, two years ago, he suffered from a very severe attack of what I suppose to have been some form of orchitis, but he says it did not suppurate, though it was enormously swollen and exquisitely painful. It yielded slowly to antiphlogistic treatment, but has remained slightly enlarged ever since, and now seems a little indurated.

At this period, I discontinued my visits, and left him in the care of his family physician, whose near residence enabled him to visit him frequently, while the distance of my residence, and numerous duties, made it impossible for me to watch the case from day to day.

30th. I have been sent for to visit the patient under a new set of symptoms. He draws off his water with the catheter once or twice a day, and passes some, naturally, in the mean time; but the tone of the bladder has, probably, been weakened by the enormous distension to which it was subjected previous to the operation; so that it does not appear to contract sufficiently to entirely empty itself. However, he does not appear to suffer much inconvenience from his urinary difficulties, but the orchitis has turned out more gravely than we anticipated. There has been extensive suppuration within the tunica vaginalis, and pus is now discharging through an opening in the scrotum; and, in addition to this, there has been extensive angeoleucitis extending from the scrotum down the course of the great lymphatics of the thigh, and three large deposits of pus, between the groin and knee are ready for the bistoury. He has a most distressing cough, with hectic and night-sweats, and we fear the deposition of pus in the lungs, and, possibly, other internal organs. The wound made by the trocar is also discharging pure pus, but no urine; and the region of the pubis is considerably swollen, and somewhat boggy. I passed a probe through the passage made by the trocar, till it came in contact with the cellular tissue underlying the symphysis, but it would not enter the bladder; nor did its introduction cause much pain.

The abscesses on the inner side of the thigh were evacuated by the bistoury and a yeast poultice applied to the pubis, and the patient put on a liberal allowance of wine, with four grains of the sulphate of quinia, and eight of Dover's powder every six hours, with egg-toddy and beef-tea *ad libitum*.

August 8. Abscesses on the thigh exhausted and nearly healed; scrotum has ceased to discharge; the cough still very troublesome, and this morning he coughed and spat up about half a pint of pus and blood. In doing this, he came near strangling from the suddenness and copiousness of the discharge. He is still coughing up pus, mixed with blood, some eight hours after the first gush in the morning; and the sputa are mixed with what seems to be shreds of decayed cellular membrane (it proved to be such under the microscope), and I inferred that there had been a deposition of pus in the lungs, which had produced its characteristic abscess, the sudden bursting of which came so near proving fatal. The puncture in the pubis has assumed a more healthy appearance, and, though still discharging, gives little inconvenience. In the absence of Dr. POPINO, I ordered the wine to be continued, with the substitution of bark for the quinia (the Dover's powder had been discontinued for some time), and roast beef instead of the beef-tea, with a half pint of egg-toddy, containing a large tablespoonful of brandy as a dessert.

September 6. Visited the patient to-day for the first time since the 8th of last month. Found him a good deal emaciated, and quite weak, but able to rise from his sofa and assist himself to a chair; appetite not so good as at my last visit; cough nearly gone, and very little expectoration. The sores have all ceased to discharge, except the puncture at the symphysis, which, though nearly closed, seems to remain open more from the general depreciation of

vitality in the whole system than from any vice in itself. I discontinued the wine, and doubled the quantity of the brandy, directing it to be taken, with a tablespoonful of cod-liver oil, an hour and a half after each meal. Diet to consist of game, beef steaks and mutton chops, with fresh milk and eggs. From this time, he steadily improved until now. At the present time (November 1), he is able to walk about and see to his affairs, though he has been twice threatened with a return of his orchitis, owing to imprudence in assisting, with his own hands, in some of the more laborious occupations about the house and gardens. He has no difficulty in urinating, and the puncture at the symphysis has been entirely healed for some time. Of course, during so long an illness, presenting so many phases, a great variety of treatment was adopted to meet the various indications; but it is sufficient to say, that general principles, familiar to the profession, were closely adhered to; and the result proves that, under the most unfavourable circumstances of age, previous disease, and unlooked-for complications, the puncture of the urinary bladder through the symphysis pubis, in this instance, proved both safe and salutary.

As far as the operation itself is concerned, it is very simple. There are no very important parts to be penetrated; nor is there any danger of wounding neighbouring organs, as in the puncture per rectum, and there need be no possibility of wounding the peritoneum, as in the supra-pubic operation; and in the present case, the pain was almost entirely confined to the first puncture through the skin. This mode of tapping the bladder has not been very frequently tried, I believe, either in this country or abroad, and, if it should prove, after a fair trial, to be even as safe as the puncture by the rectum, it must prove of great benefit to a class of patients who sometimes suffer greatly from being placed in the hands of practitioners who have not the properly shaped instrument to operate by the rectum, and whose confidence in themselves is too feeble to permit them to undertake it.

ART. XI.—*Ovarian Tumour of twelve years' standing, weighing forty-one pounds, and containing a large bony substance—successfully operated on.*
By J. TAYLOR BRADFORD, M. D., of Augusta, Kentucky, and A. DUNLAP, M. D., of Ripley, Ohio.

MY first visit to Miss H., of Mayslick, Ky., the subject of the present operation, was about the 25th of May. She had just returned from Lexington, Ky., where she and her family physician, Dr. Basil C. Duke, of Mayslick, had been for medical advice. Dr. Duke says, in a publication made by him: "When I became satisfied that it was a case of ovarian tumour, I insisted on Miss H.'s visiting some of the most distinguished surgeons; and I visited Lexington, Kentucky, in company with her, for the purpose. She was advised by all those to whom she applied, not to submit to the operation, as they looked upon it as hopeless."

Miss H. is twenty-one years of age, of medium stature, light hair, blue eyes, fair complexion, sprightly and intelligent. She had been a prey to the disease for twelve years, during which time she had subjected herself to varied and almost continued medical treatment, from different physicians. She stated to me that, whilst under a course of dieting, and such medicines as

kept her system in "tolerable condition," the tumour increased but slowly, but never diminished under any course of medical treatment.

The tumour made its appearance, at *nine years of age*, in the left groin, and she described it as being then about the size of a hen's egg. Prior to its appearance, however, she suffered from a severe attack of scarlet fever. The menstrual flux did not make its appearance until about *three years* after the appearance of the tumour, after which it occurred with remarkable regularity during the twelve years' existence of the tumour. She was occasionally subject to attacks of what some of her physicians called peritonitis, which rendered her helpless and bed-fast at times. Notwithstanding the long standing of the case, the steady, and at times rapid increase of the tumour, she never was tapped, and resisted it with wonderful determination to the last.

From the history of the case, and the unfavourable opinion of the medical men who had examined it, it is natural to suppose I commenced the examination with but little hope; so great, indeed, was my confidence and veneration for one of the distinguished men who had passed his opinion upon the case, that, after my examination was over, I stifled, as it were, my better conviction, and quoted and requoted in my own mind a precept in that "Book of books:" "Let him that thinketh he standeth, take heed lest he fall."

The examination was commenced by placing the patient upon the back with the hips a little elevated. The distension of the abdomen, upon first sight, seemed enormous, reaching the ensiform cartilage, distending enormously the false ribs, hanging in folds laterally over the spine, pressing up the spleen, pancreas, liver, and stomach, so as to elevate the diaphragm, and contract very considerably the thoracic space. The tumour had so completely filled up the abdomen that it was difficult to tell upon which side the preponderance lay. The cyst seemed round and smooth on feeling it through the parietes of the abdomen, and *unilocular* in its character. Upon the anterior superior part of the tumour above the umbilicus there was a hard *bony substance*, evidently imbedded in the sac, and seemingly about the size of the bottom of a saucer.

The walls of the abdomen were so completely filled up by the distension of the tumour, that very little movement of the tumour could be effected in any position. I had the under dress removed, through which I had commenced the examination (pardon me for it), and the thighs flexed upon the abdomen in order to relax the abdominal parietes. I then gathered up the parietes of the abdomen, with both thumbs, and the fingers, in a fold, and glided them over the bony substance to and fro, now and then pushing the bony substance with one thumb from me, whilst I held the gathered up parietes of the abdomen firm. The bony substance could be moved slightly to either side, and upwards, but imperfectly downwards. When I became satisfied that the hard substance was within the sac, and but slightly, if at all, adherent to the peritoneum, I continued the examination in a similar manner over the abdomen, holding up the integuments with both hands, and pushing the sac from me with the thumbs, then allowing the folded parietes to contract to their place, and observing whether there would be a line of adhesion showing itself in the contraction. The sounds of percussion were dull over the entire abdomen, except upon the right side near the spine, and but feeble, then, except when lying upon the left side.

On examination per vaginam, fluctuation was distinct, and the same smooth, elastic sensation of the sac responded to the finger, which was perceptible over the abdomen. The vagina was slightly drawn up, and the womb thrown back upon the rectum. The examination by the rectum pre-

sented the same characteristic as that by the vagina. The patient was placed upon her feet, and an assistant behind her, with both of his hands applied over the lower part of the tumour immediately over the pubis. I directed the assistant to raise the tumour as high as possible, whilst I retained my finger as high up in the vagina as would enable me to determine whether there were any adhesions to the womb. The tumour could be raised in this way nearly out of the reach of the finger without producing any pain or unpleasant sensation in the region of the womb, but excited much difficulty of breathing from the pressure against the diaphragm.

After concluding my examination, I remarked to the patient that there was hope from an operation; put her upon a course of diet; directed her to take, every other night, a blue pill; and to keep her bowels open with carbonate of soda and rhubarb. On my second visit to her, which was ten days after, Dr. Dunlap accompanied me, and, after a careful examination, he expressed his convictions in favour of an operation.

The patient's health for some time had been rapidly declining, the difficulty of breathing consequent upon the infringement of the lungs by the enormous tumour, together with a general debility, rendered her condition very unhappy, and it was evident that sooner or later she must fall a prey to its progress. We told her of the difficulties and danger of the operation, the ratio of mortality in the hands of operators; her mind, however, was unrelentingly made up to be operated on, notwithstanding the dissuasion of many of her friends; some of them, however—her father and mother—did not oppose, but were afraid, because of their doubts, to advise. And perhaps but one amidst a large circle of friends encouraged her to the operation.

On the 14th of June last, Dr. Dunlap and myself, assisted by Dr. Basil C. Duke, commenced the operation. The patient was placed upon a table, with the shoulders slightly elevated, the feet resting on a chair, and when sufficiently under the influence of chloroform, an incision through the *linea alba*, below the umbilicus, of about five inches, was made; the integuments, layer by layer, were carefully divided, until the ovarian cyst was exposed to view, which may be readily known by its remarkably bright glossy appearance; then by the use of the fingers and the probe-pointed bistoury, the incision was carried upward two inches above the umbilicus, and downwards to the pubis. The hand being now introduced and carefully glided round over the cyst, it was found that a strong adhesion to the omentum existed at the upper part of the tumour; and believing it to be safer to divide all adhesions except at the base of the tumour, before puncturing the sac, I was compelled to extend the incision four or five inches higher, which made an incision in the aggregate over the tumour of from eighteen to twenty inches in length. The bands connecting the tumour to the omentum proved to be large and very firm, and were inserted by several points into the *bony substance*, which had been recognized before the operation. It required considerable force to break up the adhesions, which was done by Dr. Dunlap, my assistant, with the fingers and handle of the scalpel. Very little hemorrhage occurred from so large an adhesion, so little, indeed, that no ligature was applied. The most pendent part of the sac between the umbilicus and pubis was now punctured; whilst an assistant placed the palms of his hands along the edges of the wound, immediately opposite to the puncture, to prevent the escape of fluid into the abdominal cavity, and with the extremities of the fingers gradually compressed the walls of the tumour, to expedite the escape of the liquid contents. After drawing off a considerable quantity of the straw-coloured liquid, we attempted to raise the tumour out

of the abdomen, but finding it yet too heavy to handle, we determined to draw off what fluid still remained. This being done, Dr. Duke placed his forefinger in the orifice punctured, which enabled us readily to get to the base of the tumour, where, fortunately, there were no serious adhesions. Lifting the tumour from its cavity, the pedicle was transfixated with a needle armed with four strands of saddler's silk; the ligature was then divided at the eye of the needle, and each segment of the pedicle securely tied. The neck of the pedicle being very short, it was divided close to the sac, which is probably the safest, be it long or short.

On the removal of the tumour, the liver, the stomach, the spleen, and intestines were all in full view, apparently healthy but flattened, exciting our wonder, how they could perform their functions under such encroachments. The intestines were not disturbed further than was requisite for sponging out the blood and little liquid which had insinuated itself among them.

The wound was brought together, and secured by seven needles with twisted sutures, assisted by numerous strips of adhesive plaster sixteen inches in length, and applied about one inch apart; then a strip applied up and down each side of the incision, the better to secure passiveness in the abdominal muscles, and to increase the efficacy of the cross straps. Two napkins were then folded in such a manner as to fill up the vacuum and irregularities of the abdomen, and a broad roller pinned tightly over it, to serve as a support to the abdomen, and keep in check the spasmodic action of the abdominal muscles, which is sometimes a source of much suffering.

The patient was kept under the influence of chloroform during the entire operation, but not so fully as to render her at times insensible to the progress of the operation. The pulse kept up remarkably well; but a little brandy and water was given, to support her during the change of her dress, after which she was put to bed, and expressed herself as being quite comfortable.

On examination of the tumour, which weighed forty-one pounds, the hard substance spoken of as felt through the walls of the abdomen, proved to be perfectly formed bone, as large as the bottom of a saucer. The surface of the sac, on the inner and front part, was rugous and uneven, studded over with innumerable small particles of bone, varying in size and shape from that of the thumb-nail, down to that of a pin's head; whilst that part lying next to the back was smooth, without any appearance of osseous degeneration. At the bottom of the tumour, that part lying in the pelvis, there were several small fleshy tumours of various sizes, from that of a cocoa-nut to that of a hen's egg. On cutting into these tumours, a little jelly-like fluid escaped, and within each one there were found to be a series of still smaller sacs of various shapes. Extending the examination still further, and cutting into these tumours, each one had its little group of tumours still smaller and smaller, each one, however small, containing its group; and when opened, manifesting the same curious variety of shapes.

Two hours after the operation, the patient complained of considerable pain in the region of the womb; half a grain of morphia, in a little brandy and water, was given, and in a short time she expressed herself as feeling better than she had for many months. Six hours after she suffered very much from pains, similar to after-pains, during the interval between which she was comparatively easy. The morphia was repeated, and the bandage, which had become more lax, was pinned tighter, which enabled her to rest well during the night.

For several days the catheter had to be introduced, and the urine drawn off. The bowels were not disturbed for forty-eight hours, when an injection

of gruel and lard was given, which acted kindly. On the fourth night after the operation, I was aroused from my sleep by the nurse, who stated that my patient was much worse, that inflammation was taking place—that she could not bear the bedclothes upon her bowels; fever high; pain great, &c. &c. I hastened to the apartment, and found her suffering very much. The pulse was over 100 in the minute; hot, dry skin; some pain in the bowels; had had two slimy gripping operations from the bowels, and was much alarmed. Gave a teaspoonful of camph. tinct. opii; had the skin sponged with cold water, into which a little salæratus was thrown; adjusted the bandage; and in two hours the skin became soft and moist, and she rested well during the night. Nothing of interest occurred until the ninth day, when a hacking cough occurred, which threw her into most violent paroxysms of pain in the abdomen at each effort of coughing. I gave equal portions of hive syrup and camph. tinct. opii, teaspoonful portions, every two hours; applied tartar emetic plaster to the top of the chest, which gradually reduced the cough, and she again improved.

On the morning of the sixteenth day after the operation, on entering her room, I found her standing at the window. I accosted her with my usual salutation: "How do you feel this morning, Miss Nannie?" She replied, with a smile, placing her hand over her bowels: "I feel exactly like I couldn't find myself." The wound healed kindly. During the fifth week after the operation she returned home; but not until the sixth week did the ligature come away. She is now in good health, having gained some forty pounds since the operation.

As both in Europe and in this country so much contrariety of opinion exists as to the operation of ovariotomy, each case, whether successful or not, is a matter of deep interest to the profession. Our own observation enables us to realize that many, very many cases, owe their failure to gross errors in diagnosis—a lack of discrimination between that class of cases which would warrant an operation, and those which would be fatal, with or without it. Out of some *ten cases* examined by Dr. Dunlap and myself, we have operated upon but four, all of which have been successful; one of them, a patient of Dr. Dunlap's, has, since the operation, given birth to a healthy child.

It is true that Lizars, distinguished as he is, in the first operation for ovariotomy performed in Europe, operated on a case which proved to be *obesity*, and the most distinguished medical men of Edinburgh, in their examination of the case, pronounced it ovarian. Still, I may be safe in predicting that any reputable operator, "posted up" in the present diagnosis, imperfect as it is, will not commit a like blunder in the present generation.

If an operator has any doubt about the disease being ovarian, he ought not to operate; and if it is ovarian, and the indications are, that the adhesions are numerous and dangerous, and the tumour of such a character as to embarrass materially his diagnosis, he should, as Willis advises a literary friend, "Sit quietly down and look at the probabilities;" he should wait further developments, or not operate at all.

P. S. Shortly after the present operation, I received a letter from Dr. Lightfoot, stating that it had excited considerable interest among the medical men in the city of Louisville, and that Prof. Yandell desired me to communicate to him the particulars of the operation. In compliance, I wrote Prof. Yandell a letter, giving some of the leading features of the case, which he was kind enough to publish in his journal. Since that time until the present, I have not had leisure to write out the case for your journal in detail.

ART. XII.—*Case of the Simultaneous Dislocation of both Femora upon the Obturator Foramina, with Protrusion of the Head of the Left Femur through the Obturator Foramen of that side into the Cavity of the Pelvis.* By THOMAS C. BARKER, M. D.

THE subject of this dislocation was Jeremiah S., an Irishman, 19 years old, of a rather slender form, a tailor by trade, but employed here as a waiter upon the table.

Early on Monday afternoon, October 17, the patient was crossing the Rio Chagres, upon the scaffolding employed in the erection of the railroad bridge across the river at this place, when he slipped and fell, feet foremost, a distance of some twenty-five or thirty feet upon the sand on the bank of the river, and, striking upon the inner sides of his thighs, they were forcibly thrown apart, and the heads of both *femora* were dislocated into the *obturator foramina* respectively of each side. The thighs were directed forwards and outwards, and flexed at an obtuse angle upon the *pelvis*; but which angle approximated much nearer to a right angle than is generally represented in the books which treat of this dislocation.

Complete extension could not be made of the thighs upon the *pelvis*, nor of the legs upon the thighs, though the thighs could be flexed at an acute angle upon the *pelvis*, and the legs could be flexed at a like angle upon the thighs. No serious injury, other than the dislocations, was received by the patient.

I was called to the patient, where he fell, in a few minutes after the accident had occurred; and he was immediately removed to the shanty near by, which was occupied as a hospital upon San Pablo Station of the railroad.

Dr. Foot, one of my colleagues of the medical staff on the Panama Railroad, from a neighbouring station, was present at the time upon this station.

We laboured, for nearly two hours, to reduce the dislocations by means of manual traction and manipulation; blankets (the only apparatus at hand) being applied for making extension and counter-extension, in which we were aided by assistants. All our exertions to withdraw the head of either of the *femora* from its unnatural position were, however, entirely unavailing. Late the same afternoon we renewed our efforts, but with the same ineffectual results. It need hardly be said that we made extension in those directions and by those methods which are laid down as the best in standard works upon surgery, and which I had previously found effectual in similar dislocations. But we were disadvantageously situated, for we were unable to procure two yards even of cord or rope, or any pulleys upon the station.

Further attempts at reduction of the dislocations were discontinued for that day, and an anodyne was administered to the patient. The next morning (Tuesday, the 18th), it was found that he had passed the night without any severe suffering.

No attempt was made that day to reduce the dislocations, and it became necessary to go to Aspinwall, twenty-four miles, to procure compound pulleys, cord, and swathes, which were not obtained till the next day (Wednesday, the 19th).

Dr. Foot was present to assist; and I had the aid also of Dr. Rogers and Dr. Loving, my colleagues of the medical staff from neighbouring stations upon the railroad.

Early in the afternoon of Wednesday, the 19th, we commenced our opera-

tions upon the patient. We first put him under the influence of chloroform; and, after the muscles had become apparently relaxed, we made use of manual traction and manipulation, but without any perceptible effect in removing the head of either *femur* from its abnormal position. We next resorted to the use of the compound pulleys. Having secured the *pelvis* by a swathe passed around it and padded with cotton-batting, to which was attached a cord, to a post in the wall for counter-extension, we then made gradually increased, steady, and continuous extension upon the right thigh by means of a swathe passed around it, to which was attached a cord from the compound pulleys; but we found that though the patient, by inhaling the chloroform, was reduced to a state of unconsciousness, and the muscular system was flaccid and powerless, yet, whenever any traction was made upon the limb, an involuntary and spasmodic rigidity was induced in the muscles upon which traction was made; and often, not in those muscles alone, but in those of almost the whole voluntary muscular system. This we could overcome only by continuing the extension steadily and unremittingly while we kept the patient under the continued influence of chloroform.

At length, by the aid of the compound pulleys, we succeeded in dislodging the head of the right *femur* from its position upon the *obturator foramen*, and in reducing it into place. This was effected in the method recommended by Fergusson, Miller, and other surgical authors.

We next commenced operations, by means of the compound pulleys, upon the left thigh in a manner similar to that which we had adopted with the right one, and we laboured for nearly an hour, but without any favourable results. But, finding the patient much exhausted from the continued exertions at extension and from the effects of the chloroform, we desisted from any further efforts that day, and, an anodyne having been administered to him, all further attempts at reduction were postponed till the next day.

About 11 o'clock, the forenoon of the next day (Thursday, October 20), we again resumed our operations upon the patient, who had rested better, perhaps, during the night previous, than could have been anticipated. We first constructed a firm and narrow couch, by placing boards upon two forms, with a hard mattress upon the boards. The patient was then laid upon the mattress on his back, and a stout swathe of sheeting, with cotton-batting between it and the patient's body, was passed across and in front of the *pelvis*, and then brought under the boards of the couch, where it was firmly secured, and a stick was placed in it, by turning which, the swathe under the couch would be twisted and consequently tightened.

This day, we combined *one part of sulphuric ether* with *two parts of chloroform*, and we found *anæsthesia* more easily produced, and that the depression was less, from this combination, than from pure chloroform, which we had used the previous day.

But we laboured from two to three hours without any beneficial results, though we varied the direction of our extension, resorting to all the methods which are recommended for the reduction of this dislocation. And though we made a most thorough trial of the mode recommended by Fergusson and Miller, which had been successful in the reduction of the right thigh, it utterly failed with the left one.

This day, we all perceived what a part of us had thought we detected the day previous, a *crepitus* and a jerky movement upon slackening up the cord on the pulleys after extension had been made forward from the patient's body and downwards towards his feet.

Upon examination *per anum*, the head of the left *femur* could be plainly

felt through the walls of the *rectum*, projecting through the *obturator foramen* into the pelvic cavity, and its motions could be distinctly perceived when the thigh was rotated.

As the patient was somewhat fatigued, we left him to repose for more than an hour, and we then began our operations upon him again.

The patient, having been again put under the influence of the combination of chloroform with sulphuric ether, the left thigh was strongly flexed upon the *pelvis*; thus making a fulcrum, like a cushion, of the soft parts upon the anterior portions of the thigh and the *pelvis*; so that, in this position, only moderate pressure made upon the knee was requisite to raise the head of the bone entirely out of the cavity of the *pelvis*.

A swathe having been applied around the left thigh, a cord from the compound pulleys was attached to it, and the pulleys were affixed to a beam some six or eight feet above the couch.

Extension was then made, in the line of flexion upwards, towards the patient's head, at an angle of about *fifty degrees* from the horizontal plane of his body, and about *twenty-five degrees*, laterally, from the vertical median plane. And this extension was moderately strong, and steadily continued, while counter-extension was maintained by the couch upon which the patient was fixed, being kept immovable by assistants sitting upon it. The direction in which extension was made was, at times, slightly varied, yet the general course in which it was continued was the same; and manipulation, by rotating the thigh, was at the same time practised.

After some ten or fifteen minutes of persevering and unremitting effort, the patient, meanwhile, being kept under the influence of the anaesthetic compound, the head of the *femur* (it having been previously withdrawn, as before described, through the *obturator foramen*, from the cavity of the *pelvis*) was returned to its place in the *acetabulum*. The *crepitus*, which had been observed, must have been produced by the friction of the head of the *femur* against the margin of the *obturator foramen*.

A pillow was placed between the patient's lower extremities, and they were confined together by two swathes; he was allowed to have some brandy and water; and a full dose of solution of morphia was afterwards given to him before bedtime. He passed a very comfortable night.

He continued to improve in health and strength afterwards; and though there remained some slight degree of stiffness and soreness about the left hip for some time, he is now perfectly recovered.

The swathes were retained about his thighs and legs, and he was kept quiet in bed for a few days. But within ten days after the reduction of the dislocation of the left *femur* he was walking about, and was able to perform the duties of his situation.

BARBACOAS, NEW GRENADA,
UPON THE PANAMA RAILROAD, December, 1853.

ART. XIII.—*Removal of the Astragalus.* By F. M. ROBERTSON, M. D.
Lecturer on Obstetrics, &c. in the Charleston Medical Institute.

MR. T. B., the subject of this case, was about 44 years of age, tall and spare, but muscular. His habits were occasionally intemperate. His pe-

riodical "sprees" usually wound up by an attack of delirium tremens. In the present instance he was suffering under an attack of this nature, in consequence of a protracted debauch.

On the night of the 19th July, 1851, while in a state of mental derangement from the cause just cited, he arose from his bed about 12 o'clock, and commenced groping about the passage of his hotel in search of water. He made his way to the head of the staircase, and, instead of descending in the ordinary manner, threw himself over the banister, and was precipitated, about twenty feet perpendicular, upon the steps below. He was taken up by the watchman of the house, who called assistance, and conveyed him to his room. I was sent for immediately.

Nature of the Injury.—I found the left foot turned completely inwards, and, on attempting to stand, the outer margin of the foot rested upon the floor. The lower extremity of the fibula was torn from its connections with the tibia and astragalus, and thrown backwards. The astragalus was dislocated forwards and outwards, being completely turned over, or tilted up, so that its superior articulating surface with the tibia and fibula was brought into a vertical position. This caused two prominent points—one, the outer articulating protuberance with the scaphoid; the other, the outer articulating protuberance with the calcis—to project so much as to nearly protrude through the integuments, which were drawn tensely over them, and slightly excoriated. The leg was much bruised, and cut in several places; the right ankle was also greatly contused, but without dislocation or fracture. No fracture could be recognized in the dislocated joint. I presume the posterior portion of the calcis must have struck upon the edge of one of the steps upon which he fell, by which the foot was twisted, and the particular dislocation produced.

Attempt at Reduction of the Dislocation.—I first made an attempt at reduction, with the assistance of three able-bodied men, but was unable to effect the slightest alteration in the condition of the parts. I next tried the effects of chloroform, but was unable to bring him under the influence of this agent; or rather, I did not push it further than I deemed prudent and safe at the time. It appeared to increase the nervous excitement; and, in fact, the general agitation of the muscular apparatus was such as to be little short of actual convulsions. I have seen chloroform produce similar effects in delirium tremens in other cases. I then resolved to resort to nauseating doses of tar-tarized antimony and the compound pulleys, hoping, by their combined action, to produce sufficient muscular relaxation to enable me to press the displaced bone back into its normal position. The full effects of the antimony were produced, and the pulleys applied. The full power of an able-bodied man was applied to the cord, but to no purpose; not the slightest impression could be produced. I permitted him to rest for a few hours. In the mean time Professor Geddings saw him in consultation. With his assistance, and that of my brother Dr. J. J. Robertson, of Washington, Ga., another effort at reduction was made; but it was equally unavailing. The joint was then placed in the most favourable position, and covered with an evaporating lotion.

Progress of the Case.—The inflammatory action ran high, and in a few days two sloughs, about four-tenths of an inch in diameter, were thrown off from the integuments over the two most prominent points of the dislocated bone. The suppuration was profuse. A considerable quantity of synovial fluid accumulated just behind the lower extremity of the fibula, extending three inches up the shaft of the bone. It was evacuated by an incision with

the lancet. The probe could be freely passed through the opening, to the extent of several inches, both above and below. The suppuration continued without any abatement, and it became evident that constitutional irritation was fast reducing the patient. The question of amputation, or an attempt to remove the dislocated bone then arose, for one or the other of the procedures was imperiously demanded. I determined, if sustained in consultation, to adopt the latter course, as affording a chance of saving the member. Professor Geddings met me again on the 8th of August, and, concurring in the propriety of attempting the removal of the dislocated bone, the next day was fixed on for the performance of the operation. The dangers consequent upon the operation, the possibility of its failure, and the necessity for ultimate amputation, were frankly and fully stated to the patient. He readily acquiesced in the attempt to save the leg.

Operation.—August 9, 12 M., twenty-one days from the receipt of the injury. An attempt was made to place the patient under the influence of chloroform. It produced considerable restlessness, writhing and tossing about of the arms, with incoherent muttering. Its inhalation was continued during the progress of the operation, in which I was assisted by Professor Geddings, and Drs. Fitch, Kinloch, and Anderson. A lunated incision was carried from below upwards, through the superior portions of the two openings occasioned by the sloughing of the integuments, descending and terminating in front of the external malleolus, on a level with the tendons which pass under it. The flap was dissected down and turned back. The upper portion of the integuments was turned back also. With the index finger of the left hand as a director, the tendons and anterior tibial artery were protected, and forced as much as possible out of the way; and, with a strong, narrow, straight bistoury, the connections of the bone were severed in that direction. The attachments in front were next divided, and the knife freely passed between the astragalus and calcis. The bone was now seized with a pair of Meigs's embryotomy forceps, which I had selected for the purpose, and forcibly wrenched outwards, while the remaining deep-seated attachments were severed. But slight hemorrhage took place, as no artery requiring a ligature was divided. Upon examining the bone, it was found that the posterior inner protuberance had been fractured; and, on passing the finger into the cavity, the fragments were found to be held by firm ligamentous attachments. These were removed by means of the probe-pointed bistoury and forceps. The flaps were drawn together, and secured by interrupted sutures and adhesive straps, and the whole covered with an emollient poultice. Dr. Kinloch, who administered the chloroform, was of the opinion that the patient was not fully under the influence of the anaesthetic agent. The patient stated, however, that, though perfectly aware of what was being done, he did not feel any pain, and attributed his restlessness and incoherent muttering to a consciousness of what was going on.

The adhesive straps were removed on the third day after the operation, and a portion of the edges of the flaps had united by the first intention. In the course of ten days, however, the joint became generally inflamed, with profuse suppuration. Fluctuation was felt just over the internal malleolus. It was opened, and, for some days, continued to discharge an ill-conditioned bloody pus; it then gradually closed, leaving a general tenderness over that region, which slowly disappeared.

On the 27th of August, the condition of the patient was decidedly unfavourable. The discharge from the joint was profuse, and unhealthy in character. Considerable exfoliation had taken place from the inferior end of

the fibula, and the granulations about the external wound were flabby and unhealthy in appearance. The patient was also suffering greatly from constitutional irritation; in addition to which he had become extremely emaciated. Upon further consideration we determined still to persevere, and endeavour to save the limb. Our patient was placed upon a generous diet, a pint of Scotch ale per day, and a tablespoon of the tinct. cinchon. comp. three times a day, and the edges of the wound were daily touched with argent. nit. Under this course, matters soon assumed a more favourable aspect, and his improvement was now rapid. On the 12th September, he was so far recovered as to be able to draw on a stocking and loose slipper, and take exercise with the assistance of crutches. About the 1st of October he left for his residence in a distant State, the external wound having healed to a mere point.

He was heard from on the 12th December. The external wound had entirely healed. He has good lateral motion of the new joint, and flexion and extension to a limited extent. He is able to walk comfortably with the assistance of a common walking-cane, and a shoe with the heel about half an inch higher than the other.

The foregoing statement is an extract from my case-book, in which the record was made just as the case progressed.

[Dislocation of the Astragalus is a very serious accident, and its treatment is often perplexing and difficult. It may be useful therefore, in connection with the above interesting case, to refer our readers to an instructive paper on this subject by Dr. GEO. W. NORRIS, in the number of this *Journal* for August, 1837, and also the case of Mr. J. TUFNELL, and the observations of M. BROCA, in the Summary of the present number, (see Department of Surgery.)—ED.]

ART. XIV.—*Opium as a Remedy for Obstinate Ulcers.* By Dr. W. H.
ROBERTS, late Act. Surg. U. S. A.

AN article denying the remedial effects of opium in the treatment of sluggish ulcers, was published some months since in the *American Journal of Med. Sciences*. The experience of its author being the reverse of my own, and calculated to greatly depreciate what I have found to be an invaluable remedy in old and obstinate ulcerations, I beg to give you the results of my own observations in both civil and military practice.

The action of opium, when given in stimulating doses, upon the skin and capillary circulation, would alone point it out, as a fitting remedy, in this and other diseases of the skin. This first induced me to make trial of its powers; and experience has amply justified its use. I am convinced the true value of opium in all the diseases which affect the skin, has yet to be fully appreciated.

With regard to the use of opium in chronic ulcers, I have found its effects to be greatly influenced by the absence or presence of constitutional or general derangement of the system.

In all cases that have fallen under my notice, and as far as I could learn from the experience of medical friends, the disease when purely local is readily cured by small doses of opium internally, and cold water dressings locally. Where the patient was of a scrofulous diathesis, or had been tainted with syphilis, the treatment had to be varied according to the circumstances.

Most of the cases that fell to my charge in civil practice were of the first-mentioned class, and yielded readily to the small stimulating doses of opium, together with the cold water dressings. Afterwards, in attending upon the troops, I met with scarcely a case that was purely local in its character. Among both the regulars and volunteers, ulceration of the legs was a common complaint; but, in nearly every case, it occurred upon persons either tainted with syphilis, or upon those whose constitutions had been broken by hardships, exposure, the diseases incident to the climate, and, in too many cases, by intemperate habits. In such subjects, as was to be expected, the opium used alone failed altogether, or the benefit derived from its use was only temporary.

On the other hand, no other mode of treatment was entirely satisfactory when uncombined with opium.

A synopsis of some of the cases upon my note-book will best illustrate the treatment and its effects. A minute detail would occupy too much space without giving a more accurate idea of either:—

CASE I. *January 8, 1846.*—I was called to visit Mrs. N., a young married lady, who had been confined, twelve months previously to my seeing her, with her first child. She informed me that, since her recovery, she had been continually afflicted with ulcers upon her legs. She had been treated for this complaint by several practitioners, both regular and irregular, but had derived no permanent benefit from their very numerous prescriptions.

Upon examination, I found both legs covered with ulcers in different stages of progressive formation. In some spots the skin was merely red; in others the sore had become purple; in some the cuticle was elevated, with a dark fluid beneath. The most advanced showed the true skin and cellular tissue to be sphacelated to a greater or less extent.

For the first week, I adopted the treatment usual in such cases; but with the same want of success that had attended my predecessors.

After mature reflection, I determined, for the first time, to try opium internally, in small doses, together with cold water, for the only local application. I exhibited the opium in doses of one-third of a grain three times daily. I commenced this treatment January 16. On the 21st, the sores had begun to put on a florid-healthy appearance. On the 26th, I began to lessen the quantity of opium, and, from that date, gradually discontinued its use. This was the whole course of treatment pursued, with the exception of a single dose of blue mass, followed with a Seidlitz powder, which were prescribed on the 18th. The 2d of February I paid her my last visit; since which time she has had no return of the disease.

After the return of the troops from Mexico, there was no complaint which more frequently demanded my attention than ulcers situated in the superficial

soft parts above the middle third of the tibia. Not one of these cases could be made to yield to the opium unaided by general alterative treatment.

CASE II.—G. C., a private in the volunteer battalion from Florida, went to Mexico a robust man, of about 25 years of age, of temperate habits, and he assured me he had never had any venereal complaint whatever. He suffered severely from the fevers and diarrhoea of the country. When, after his return, he placed himself under my care, his constitution, to all appearance, was completely broken. He was anaemic and emaciated, without appetite, and, his mind having become despondent, he had begun to despair of a cure. He placed himself under my charge to be treated for ulcerated legs, which, he said, were brought on by a local injury in the first instance, and had been aggravated by his ill-health, and still more by some of the local applications he had been induced to use. For two weeks I pursued in vain the treatment I had found so beneficial in Case I.

November 14, 1848. I ordered him to have one grain of sulph. quinia four times daily, with an ounce of the following: R. Sarsaparillæ rad. $\frac{3}{ij}$; muriat. ammoniæ $\frac{5}{ij}$; aquæ fervent. Oj.

The opium was discontinued, and his legs dressed with cold water as before.

29th. His general health had greatly improved; his appetite had also returned. I resumed the opium treatment, but continued his other medicines as above.

December 4. The ulcers began to look healthy, and from this time continued to heal rapidly until the 24th, when the patient considered himself well able to resume his occupation as a waterman.

CASE III.—A private in the 4th artillery came into the hospital with ulcerated legs soon after his return from Mexico. This man's constitution had been injured by syphilis, though, when admitted, his general health appeared to be good. In this case, also, I endeavored to heal the sores with stimulating doses of opium and cold water applications locally; and, as in Case II., I totally failed. After ten days' trial without any good result, the opium, $\frac{1}{2}$ grain, was combined with 1 grain mass hydrarg., to be given three times daily. Local applications (cold water dressings) continued. This treatment, with occasional exhibitions of tincture of iron, and Lugol's solution of iodine, was continued for three weeks with marked benefit. At this time the patient no longer kept his bed, and the ulcers were granulating as rapidly as I wished, when, at the man's urgent request, I was induced to discontinue the opium. During the four days of its discontinuance the old sores made no further advance towards healing, and two purple spots indicated a reinforcement to their numbers. I at once resumed the use of the opium, which produced its usual effects. Two weeks after, the man returned to his duties; and though in this case, owing to the exciting cause, the relief may prove to be but temporary, still it is relief, and not to be despised, however brief may be its duration.

Numerous cases similar to those I have selected, has given me a strong faith in the curative properties of opium in these and similar affections. Nor do I rely solely on my own experience. Men of careful observation and sound judgment have assured me that it has proved of great value in their practice.

ART. XV.—*Medical Notes on the Wreck of the San Francisco.*

By WM. P. BUEL, M. D., Surgeon of the Steamer.

THE San Francisco was one of the largest class of sea steamers, falling very little short of the largest of the Collins steamers. She had accommodations which would have enabled her, when uninumbered by freight, to berth 1,400 passengers, besides the necessary accommodations for her officers and crew. When she proceeded to sea, on the 22d of December, she had, all told, but 750 souls on board, divided as follows:—

Officers and soldiers of the 3d Artillery	550
Females and children connected with the above	100
Officers and employees of the steamer in different departments, sailors, engineers, firemen, coal-passers, stewards, cooks, and waiters	100
Total	750

The steamer was so filled with freight of different kinds, the coal necessary to carry her to Rio (of course, a very large amount), provisions for such a number of troops, military stores, baggage, &c., that, of this small number, small in comparison with the capacity of the vessel, less than one-half could be accommodated below; 400 of the soldiers had to be berthed on the main deck of the steamer, in temporary standee berths.

With some trifling exceptions, all on board were in good health at the time of departure. There was one case of varioloid among the troops, but, as they had all been vaccinated previous to the embarkation, the disease was communicated to only a single individual. The children of one of the officers were affected with measles. There were among the troops some slight cases of venereal affections. All the rest were in excellent health. About one-half the command were recruits, but they had been selected from the whole number at the recruiting depot on Governor's Island, as possessing the best *physique*, and perhaps the best *morale* of the entire number.

I presume most of the persons on board took their departure with higher hopes and more pleasurable anticipations, than is usual for those who bid adieu for the first time to their homes and native land. Embarked on a splendid steamer, fitted with every convenience, and supplied with every kind of stores necessary for their comfort; surrounded with gay and light-hearted companions; bound for a land which fancy had painted in golden colours; they anticipated a voyage of pleasure.

After the wreck, which took place on the night of the 23d and morning of the 24th of December, the total number of souls on board was reduced to 620. About 130 were at that time washed overboard, and found a watery grave. The condition of the survivors, morally and physically, was such as might naturally be expected to terminate in disease and death. Numerous causes

were in operation pregnant with such results. Among some of them were the following:—

1. MORAL CAUSES. *The Depressing Passions—Fear, Anxiety, and Suspense.*—For the first three or four days after the wreck, the probability that the ship would go to the bottom at any moment, was sufficiently strong and imminent to intimidate even the coolest and most courageous. The timid and faint-hearted were completely panic-stricken. Many of this class abandoned themselves to despair. They fell easy victims to the pestilence which invaded us after a brief interval.

2. PHYSICAL CAUSES. *Over-crowding and Want of Ventilation.*—Of the 400 soldiers who, previous to the wreck, had been quartered on the main deck, all those who survived the storm were driven below. Including those previously berthed there, they made up an aggregate of 500 men, women, and children, crowded into quarters never designed for more than 200 to 250, and barely sufficient for that number. The ship was amply provided with the means of ventilation in good weather. Numerous airports, of an unusual size, opened along the sides of the vessel, which, in ordinary weather, would have admitted abundant supplies of pure air to every part of it. But, with the heavy and tempestuous sea that prevailed almost constantly, these could not have been opened a moment without endangering the vessel. The lower second cabin, occupied by the wives and children of the non-commissioned officers and soldiers, was more completely cut off from the external atmosphere than any other portion of the ship, and it was here the pestilence commenced and was most destructive.

Cold and Wet.—From and after the storm, the ship was continually wet; the beds and bedding were never dry. The cold was at no time intense, but it was sufficiently severe, with the dampness, to act as a cause of disease.

Insufficient and Unwholesome Diet.—The roll of the ship, caused by the tremendous sea that prevailed for several days after the wreck, was such that fires could not be kept up in the galleys, nor could provisions or water be retained in the boilers. In consequence, little but uncooked food could be issued. Cold water, hard biscuit, and raw pork, were all that could be furnished to the majority of those on board. In addition to these, some of the soldiers, and perhaps others, gained access to the preserved meats, vegetables, and fruit laid in for the cabin passengers, and probably indulged to excess. This exciting cause was, however, confined to a limited number, as I ascertained, by careful inquiry, that those first attacked had taken no food but hard biscuit, and no drink but water, except that some had mingled with it vinegar or molasses, under the impression that it would thereby be rendered less hurtful. Thus it appears that, on board the San Francisco, there were in active operation all those influences which everywhere, and under all circumstances, tend invariably to the production and development of disease in the human system. Either of them singly is often sufficient, and, where all were combined, malignant and fatal disease was the unavoidable consequence.

In camps and in military hospitals, in prisons and in crowded emigrant vessels, in our own and in other lands, these pestiferous agencies have written their own history in mournful characters.

The exact character of the disease which shall be produced, varies with the varying circumstances of the case, and with the particular character of that inscrutable agency, which, to cloak our ignorance, we invest with the name of "*epidemic influence*." Sometimes it has been erysipelas; sometimes, dysentery; more frequently, in other years, it has been typhus; recently, it has been apt to assume the livery of that fearful pestilence which decimates cities, and wraps the nations in mourning—Asiatic cholera.

On board those crowded emigrant ships which daily land on our wharves, by hundreds and thousands, the redundant population of European countries, malignant cholera has prevailed extensively and fatally during the past year. Precisely the same agencies which, in previous years, filled these ships with fever patients, have, during the last, in many instances, decimated the whole ship's company by cholera. No reason can be assigned for this, save the one alluded to above—the prevalence of an influence favouring the one result rather than the other.

It has been observed that, with much regularity, disease begins to manifest itself in these vessels about five or six days after leaving port. This has been the case to such an extent, that it has been imagined that, about the distance from land which would be run over in that length of time, these unfortunate vessels enter upon a zone or cycle of the ocean, the atmosphere of which, poisoned by a pestiferous influence, hatches into existence this brood of disease and death. This is an hypothesis too fanciful to need serious refutation. It is obvious that the human system is endued with a certain power of resistance against those morbid agencies which generate disease. There is to all diseases a period of incubation; distinct and definite in the exanthematae, less so, but still well marked, in fevers and other diseases. This period of incubation sufficiently defines the period of the development of disease in emigrant vessels.

I have been led into these remarks by the fact that, when the cholera manifested its existence on board the San Francisco, that vessel had been about seven days out of port, between five and six of them subsequent to the wreck. Thus, the incubation period corresponds almost exactly with that of the emigrant ships.

The SYMPTOMS were identically the same with those, unfortunately, too well known as everywhere accompanying malignant cholera. Serous diarrhoea and vomiting, spasms, collapse—death. What need of further description?

The first cases appeared in the lower forward cabin. This was the part of the ship most crowded with inmates, and most completely deprived of ventilation. It was occupied by the wives and children of the non-commissioned officers and privates of the regiment. Long narrow state-rooms, twelve feet in depth, ran athwart ships on either side. Each state-room had in it twelve

berths, and the floors were covered with the sick. Each of these rooms formed a perfect *cul-de-sac*. The air-ports opening into them on the vessel's side were of no avail; the violence of the sea forbade their being open for a moment. The atmosphere in these long, narrow rooms, crowded with sick and dying—where all ventilation was entirely impossible, was pestilential in the highest degree.

Just forward of the forward cabin, there was an apartment smaller in size, but similar in plan, which was designed, in the arrangements of the voyage, for the military hospital. By knocking away the bulkhead, which separated them, the two had been thrown into one, and were so, to all intents and purposes. Here was the focus of intensity, and here the maximum of mortality of the disease.

Still further forward lay the steerage, occupied by privates of the regiment in open berths. It communicated with the external air by a large hatch opening immediately upon the main deck. It was, consequently, to a certain extent, ventilated. The sickness and mortality here were great, but considerably less than in the forward cabin.

The main saloon, or after cabin of the ship, was a large, spacious, open apartment. It was occupied, after the wreck, in part as a sleeping apartment for the officers of the army and of the ship, and in part as a guard-room for the soldiers. It was less densely crowded than the forward parts of the ship, and there were here comparatively few cases of severe disease.

Treatment and its Results.—As nearly all the medicines on board, both those belonging to the ship and those composing the Army Medical Stores, were either destroyed by the storm or thrown overboard, in the attempt to lighten the ship after the wreck, the extent of medical agents which could be brought to bear upon the disease was exceedingly limited. Opium, brandy, capsicum and mustard, and these in limited quantities, were all. They were successful, in many cases, in controlling the preliminary diarrhoea; but after cholera was freely established, they were for the most part wholly powerless.

The forward cabin, already described, constituted the focal point of the pestilence. Almost every case which occurred here, went straight on to a fatal termination, entirely unchecked by remedies. Those occurring in the saloon, and in the steerage, were less malignant, and many of them recovered.

Mortality.—The wreck of the San Francisco occurred on the night of Friday, the 23d, and morning of Saturday, 24th December. On Wednesday the 29th December, about one hundred of those who survived the storm and wreck were taken off by the barque Kilby. It is somewhat remarkable that, among the rescued of this company, though they suffered many hardships, and were on short allowance, both of food and water, no death occurred. There were some cases of diarrhoea, but none fatal.

On Thursday, Dec. 30, the first cases of cholera occurred. During the six or seven days, which intervened between this date and the transfer of all the survivors to the ships Three Bells and Antarctic, on Wednesday the 5th and

Thursday the 6th Jan., the deaths in the San Francisco amounted to about sixty. At the time of the transfer, from thirty to thirty-five were in a dying condition, or very low. Of this number, fifteen perished on board the Three Bells; sixteen or seventeen on board the Antarctic.

Of the seven hundred and fifty persons who embarked on the San Francisco, full of life and hope, about one hundred and thirty were washed overboard and drowned on Saturday morning, December 24; ninety perished with malignant cholera; the survivors, about five hundred and thirty in number, after many perils and vicissitudes, extreme hardships and privations, a portion of them after two winter voyages across the Atlantic, succeeded in reaching New York in safety.

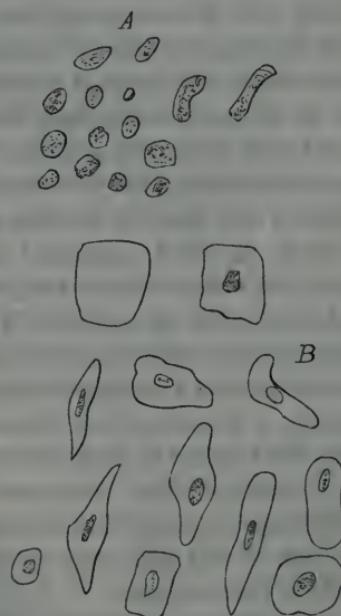
ART. XVI.—*Vaginal Discharges examined with the Aid of the Microscope.*

By LUTHER PARKS, JR., M. D., of Boston. (With two wood-cuts.)

I HAVE had two opportunities of inspecting, microscopically, vaginal discharges in the living subject, the results of which I here give.

In an inconsiderable quantity of sero-mucous secretion from the vagina of a patient, immediately after the close of menstruation, Nov. 3, 1853, were

Fig. 1.



seen mucous, or pus-globules, like A, Fig. 1, and epithelium scales, like B, Fig. 1. A few months previously I had removed a glandular polypus, of small

size, from the cavity of the cervix uteri of this patient. The os and cervix uteri were now found in an apparently healthy condition.

Leucorrhœal discharges from another patient, taken Nov. 22d and 23d, 1853, gave similar appearances.

Having obtained a uterus with a portion of the vagina attached, from the dissecting-room, through the kindness of Dr. Hodges, I proceeded to its examination, with the following results. Within the canal of the cervix, and partly emerging from the os, was a mass of transparent tenacious viscid fluid, a portion of which I removed, *avoiding contact with the neighbouring parts.* Placing this under the microscope, I beheld a large number of mucous, or pus-globules, like Fig. 1, A, and a few like A, Fig. 2.

Having laid open the cavity of the womb, and scraped from its inner surface, at about the centre of the posterior wall, a turbid fluid, I found the field to be filled with mucous, or pus-corpuscles, similar to A, Fig. 1, and A, B, Fig. 2. B, Fig. 2, represents the only specimen of the kind I saw.

The above-mentioned masses of glairy fluid having escaped from the os, lay in contact with the vagina. This I removed and placed under the glass, when I saw in it mucous, or pus-globules, A, Fig. 1. In addition, were a number of epithelium scales, B, Fig. 1.

An opaque fluid having been scraped from the upper part of the vagina, below the os uteri, showed an abundance of epithelium scales, with a minor proportion of mucous, or pus-corpuscles, A. A specimen from the lower part of the vagina seemed to contain a still smaller proportion of the mucous, or pus-corpuscles. A mass scraped from the outer surface of the cervix uteri, near its junction with the vagina, consisted of epithelium scales like B, Fig. 1, with few or no small globules, like A.

A second specimen, taken from the cavity of the uterus, near the left Fallopian tube, was similar to the previous specimen from the centre of the uterine cavity.

We find, then, from these observations, that the secretion of the vagina, and of the exterior of the cervix, consisted mostly of epithelium scales, while those of the cervical canal, and interior of the womb, contained small globules—mucous or pus—of an entirely different appearance. We also saw that, in the vaginal secretion taken just below the os uteri, there was an admixture of globules, like those seen in the secretion from the uterus; and that, in a specimen taken from the lower part of the vagina, the proportion of mucous or pus-globules was smaller, this proportion being also reduced nearly or quite to zero, in the mass scraped from the exterior of the cervix uteri. We may infer, then, that the mucous or pus-globules seen in the masses, scraped from the vagina, came from the uterus, and that while these are peculiar to the lat-

Fig. 2.
B A



ter, the epithelium scales belong to the former. We may thence also presume that the discharges taken from the living cases were composed of an admixture of uterine and vaginal secretions.

In none of our observations did we see any of the ciliated epithelium described by Dr. Tyler Smith, though in A, Fig. 1, are two corpuscles which may possibly be specimens of the cylindrical epithelium mentioned by him. These observations, as far as they go, lead me to the inference that the epithelium occurring occasionally in fluid taken from the cavity of the cervix (as described by Dr. Tyler Smith, in his admirable paper on the microscopical examination of the cervix uteri), are, as partly suggested by Dr. Smith, obtained by contact with, or imbibition from, the vagina.

I will add that the preceding investigations were made before I had seen the paper of Dr. Smith, which I received through the Messrs. Ticknor, December 14, 1853.

REVIEW.

ART. XVII.—*Pneumonia: its supposed Connection, Pathological and Etiological, with Autumnal Fevers; including an Inquiry into the Existence and Morbid Agency of Malaria.* By R. LA ROCHE, M. D., Member of the American Philosophical Society, of the American Medical Association; Fellow of the College of Physicians of Philadelphia; Corresponding Member of the Imperial Academy of Medicine of Paris, etc. etc. Philadelphia: Blanchard & Lea, 1854. 8vo. pp. 502.

WHILE in almost every other department of pathology, our knowledge has, within the last few years, been rapidly progressive, in that of etiology it can scarcely be said to have made any advance since the commencement of the present century.

Facts, it is true, have been accumulated, and divers theories, in relation to the efficient cause of many of the more prominent maladies, have been broached; but when we examine and analyze these facts, we find them to be, often, but carelessly or imperfectly noted, and derived, in the majority of instances, from such limited fields of observation as to form no solid basis for the general deductions attempted to be founded on them.

The subject of etiology is, confessedly, one of great difficulty, and it may be expected to remain involved in doubt and uncertainty until we shall have it in our power to determine the precise conditions under which the several forms of disease are found invariably to prevail. This can only be attained by the collation of full and accurate series of medical statistics, running through many consecutive years; collected amid communities inhabiting the various climates and geological formations of the earth's surface, and studied with especial reference to the condition of each locality—its topography, and meteorological phenomena—the seasons of the year, the ratio of population, the food, clothing, and habitations, together with the political, moral, and social condition and pursuits of the people, as well as the state of the industrial arts in each community.

Since the period when the attention of physicians was first especially directed to the influence of paludal exhalations as a fruitful source of disease, by the work of Lancisi, there has been a constantly increasing tendency with etiologists to ascribe almost all the fevers and febrile affections to a supposed toxic agent, exhaled under the modifying influence of certain contingent influences—heat, humidity, etc.—from organic substances during the process of decomposition. To the morbific agency of the miasm or malaria thus generated has been referred, not only all the forms of what have been termed essential fevers, but also diarrhoea, dysentery, cholera, rheumatism, neuralgia, and even the purely local inflammations of many of the internal organs. There is, in fact, a disposition to constitute this miasm or malaria the one sole cause of nearly all diseases, especially those of an endemic or epidemic character.

"The idea of a close connection, as regards both causation and nature, between thoracic inflammation and malarial fevers of various grades and types,

has long been entertained, and continues even now to be advocated by writers of respectable standing. Casually suggested or openly avowed and sustained, at various periods, by professional authorities on the other side of the Atlantic, it has met with especial favour in this country, particularly in our Southern and Southwestern States, where it, at present, enlists many warm and uncompromising defenders."

To demonstrate the fallacy of this singular etiological doctrine is the object of Dr. La Roche in the work before us. To present an abstract of the leading facts that bear upon the question at issue, derived from reliable sources in various sections of the globe, as well as from the results of his own personal observation, and, by a careful analysis of these, to show that the supposition of the identity, etiological and pathological, of pneumonia and autumnal fevers, is founded on insufficient or incorrect data, and is, in fact, little more than a dream of the imagination, is the task assumed ; a task which it will be admitted, we think, by all who are open to conviction, has been most satisfactorily accomplished.

In addition to this, his leading object, Dr. La Roche discusses also the question of the existence and morbid agency of malaria in the production of autumnal fevers, with the view to prove that etiologists who regard these fevers as the result of particular poisons floating in the atmosphere of specific localities, have just cause for entertaining that belief.

That the facts adduced in this portion of the work clearly establish the main position assumed by the author—the existence, namely, of a specific aerial poison as the cause of autumnal fevers—will admit of very serious doubt. The leading observations in relation to the general condition of those localities of which fevers are endemic, are it is true very fairly and fully presented. Dr. La Roche has certainly collected a large amount of valuable information in respect to this important subject from the most reliable sources—many of which have never been explored by the mass of the profession. But with all the research he has manifested, and the skill he has displayed in arranging the materials accumulated, we cannot admit that he has succeeded in demonstrating the existence of a specific aerial poison, derived, under the modifying action of certain contingent influences, from organic substances during the process of decomposition, as the morbid agent in the production of autumnal fevers. Admitting the truth of all the leading facts adduced by Dr. La Roche, and we are not prepared to invalidate in the slightest degree either of them, still, the question as to the existence of the supposed specific febrile poison appears to us to remain as open as ever to dispute.

The examination of the connection assumed to exist between pneumonia and autumnal fevers is the subject of the first chapter, and of the last three ; while in the second, third, and fourth chapters the question as to the existence and morbid agency of malaria is discussed.

Singular as it may appear, remarks Dr. La Roche, to modern etiologists and pathologists, that the connection as regards both causation and nature, between thoracic inflammations and autumnal fevers should have been made the subject of serious consideration by our forefathers, and still more so, that it should receive the sanction of physicians of the present age, it requires but a slight acquaintance with the medical literature of past and present times to be aware of the fact. To prove this, a few references are made to the writings of well known preceding and contemporary medical authors :—

"The reader will easily perceive," says Dr. La Roche, "that, before the advocates of the identity of the two diseases can successfully sustain the position they have assumed, it will be necessary for them to show that autumnal fevers

and pneumonia are produced by the same causes ; that they prevail in the same places, and during the same seasons of the year ; that their existence and diffusion are promoted by the same agencies ; that they are arrested by similar means ; that they exercise their effects on the same classes of individuals ; that they present similar or kindred symptoms ; that they affect the same organs, and produce the same or analogous changes in the fluids and solids ; that they are governed by the same laws, and that they present other points of approximation invariably found to be possessed by diseases between which there exists the close connection claimed in the instance before us. Unless they can succeed in attaining these objects, their opinion must fall, and the independence of those diseases be admitted. It becomes necessary, therefore, to take up each of those subjects separately, and to ascertain how far they may be appealed to in respect to the question at issue."

The author adduces a series of observations to show, first : That pneumonia is of common occurrence in situations where fevers seldom or never are seen ; 2dly. That pneumonia is not necessarily prevalent where fevers are prevalent ; 3dly. That the two diseases prevail in different seasons :—

"As the name usually affixed to malarial fevers indicates, the latter is, in our latitudes especially, a disease of autumn. It seldom appears before the middle or close of summer, and ceases on the accession of winter. Its existence in an epidemic form in temperate regions, is never known to occur in the spring of the year; cases that occur in that season, or in winter, being accounted for without having recourse to the supposition of the development then of the efficient cause. It never shows itself in winter, and if it appear early in summer—which is seldom the case—the occurrence is only noticed under peculiar circumstances of atmosphere existing during the preceding months, and which invest these with the characteristic conditions appertaining to autumn. It is emphatically a disease of hot weather, requiring for its production a continuance for some time previous of high atmospheric heat. It appears, generally, some weeks after the hottest month ; the period being retarded as we proceed north. For the same reasons it may readily be understood to be a disease of hot latitudes, prevailing, as it does, violently and almost perpetually within the tropics, and ceasing long before we reach the polar circle."

"If we now turn to pneumonia, we shall find that the period of its prevalence is very different from that of the disease just referred to. Hippocrates some three thousand years ago, and Areteus after him, pointed out the winter as the season in which the disease manifests itself most commonly, and subsequent writers have generally united in that sentiment. Sydenham, it is true, and after him the learned commentator of Boerhaave, affirmed, as the result of their observations, that the disease attains its maximum between spring and summer. But the statement has not always been confirmed by subsequent authorities in this country and Europe."

"Everywhere, among adults, children, and old people, idiopathic or primary pneumonia appears to attain the maximum of frequency at the close of winter and in the spring, especially during the months of March and April. Next in point of frequency is the winter; while the disease, though not unknown in summer, is comparatively of rare occurrence during that season, and perhaps still more so during the autumnal months."

4thly, the author shows that the two diseases appear under the influence of opposite winds :—

"So far as regards malarial fevers," remarks Dr. La Roche, "not a little in this matter will depend on the nature of the surface over which the wind may happen to pass before reaching the locality where the disease prevails; for at the proper period of the year, other things being favourable, fever will appear in connection with any currents which waft the air from neighbouring surfaces where the elaboration of the morbid cause is going on. But, however true it may be, that particular currents of wind exercise a baneful influence in the

way mentioned, it is not less a fact, which experience will everywhere confirm, that the existence of malarial fever has almost invariably been connected, in temperate regions particularly, with the prevalence, during a greater or shorter space of time, of southerly currents, and that the influence that these exercise is not necessarily, and in some forms of the disease is very seldom dependent on the malarial nature of the localities over which they happen to pass. Nor could this well be otherwise, for these fevers require for their development the long continuance of a range of thermometrical heat, which could seldom be obtained during the prevalence of opposite currents. Now, how do matters stand in that respect as regards pneumonia? If in some localities, as at Gibraltar, for example, the disease prevails most usually during those periods of the year when westerly winds are predominant—if the disease, also, is found to occur more frequently in other places under the influence of different currents, it may be laid down as a general rule, that north, northeast, and northwest winds are those during the prevalence of which thoracic inflammations are more frequently developed. Such was found to be the case in the north of Italy and Germany by J. Frank. Le Pecque de la Cloture made similar observations in Normandy, as did also Hourmann and Dechambre, and Grisolle at Paris." "Similar results have been noted in England, in Nova Scotia, and Bermuda; and it can scarcely be necessary to add that in this country pneumonia is almost invariably associated with the prevalence of northerly currents—N. N. E., N. W., or west."

It is shown, 5thly. That while pneumonia is of yearly occurrence, this is not always the case with fevers even in those localities of which they are the especial endemic; 6thly. That the altitudinal range of the two diseases is not the same—autumnal fevers being the endemic of valleys, plane surfaces, the banks of streams, lakes, and other depressed localities, while they very commonly spare high and well-aired situations. On the other hand, pneumonia, though not a stranger to low grounds, valleys, and similar situations, prevails as widely, if not more so, on mountains, hills, and other elevated places. 7thly. That fevers are influenced by the nature of the soil, which is not the case with pneumonia. 8thly. That fevers are arrested by frost, but not so pneumonia—this being even increased in point of frequency by the very thermometric change which puts a stop to the occurrence of autumnal fevers.

It would be impossible to present a satisfactory analysis of the numerous observations adduced by Dr. La Roche from the professional experience of the medical writers, as well of the past as of the present time, in support of each of the above propositions. These observations are in general well selected and apposite. Occasionally the author may, it is true, be accused of having overloaded the subjects discussed by the multiplicity of his references; nevertheless, all the facts he has enlisted in the argument are replete with interest, and deserve a careful perusal and candid consideration on the part of all who desire to judge clearly of the differential etiology of what have been denominated the essential fevers and pulmonary inflammations.

Passing by for the present the three chapters devoted to the subject of malaria, we arrive at the fifth chapter of the treatise. In this, pneumonia and autumnal fevers are compared in reference to their causes, mode of progression, symptoms, anatomical characters, and the circumstances by which they are influenced.

The difference in the causes by which the two diseases are respectively produced is clearly indicated.

"We have seen," says Dr. La Roche, "in a preceding chapter, that the prevalence of malarial fevers, of various grades and types, is restricted within certain localities; that in many instances, the area of those infected places is very limited in extent; that while the disease prevails in one spot, individuals who

reside at a short distance, and abstain from visiting that spot, escape; that by removing from one part of the same city to another not far distant, or from one end or side of a house to another, or from a lower to a higher story, the disease may be avoided; that ships, by shifting their position from one part of a sickly port or shore to another close by, are often found to lose the fever, from which, before the change, they had suffered severely. We have seen, on the other hand, that in certain localities, the crews of vessels that had been exempt from fever so long as they remained at only a short distance from land, were attacked, sometimes to a man, as soon as they ventured ashore; and that individuals who had enjoyed good health while avoiding infected city or country localities, were attacked with an almost unerring certainty, in consequence of visiting or passing through them. Now, the physician who should undertake to collect facts to prove that the sphere of prevalence of pneumonia is as narrowly circumscribed as it is sometimes found to be in fever, would have an ungrateful task to perform. We nowhere hear of this disease attacking a large number of the residents of a limited spot, of a part of a house or street, and leaving every one in the close vicinity of that spot, in the next street, or in the adjoining houses, perfectly unscathed. Nor need we fear to predict that the medical writer who ventures on the assertion that pneumonia has frequently been observed to attack the occupants of the lower rooms of houses, or the basement wards of an hospital, and to scrupulously respect those who dwell above; that all the inmates of one end of an asylum, hospital, prison or house, have been struck down by inflammation of the lungs, while those occupying the other parts of the same building have remained untouched—and that, too, not during one season, but during a succession of seasons—will run great risk of giving but an unfavourable opinion of the authenticity of his facts, or the soundness of his judgment. We do not hear of the crews of ships ridding themselves of the disease in question, by shifting their position, and anchoring at the distance of a few dozen yards; or of vessels, which before had been healthy, becoming by a reverse change, or the removal of an intervening ship or other object, suddenly visited with the disease. Neither do we find a large number of instances on record of vessels which were free so long as they remained under sail, or at anchor at a short distance from an infected shore, being filled with pneumonic cases the moment they approached close to the land, or sent their boats to explore the mouths of rivers, &c.; or, again, of scores of individuals, who had remained healthy while residing at a short distance, being attacked with pleurisy or pneumonia in consequence of jumping over the barricades, and promenading about the streets of an infected spot."

After referring to the fact, that those means by which the condition of a locality may be so far changed as to put a stop to the prevalence there of fevers have no such salutary influence in respect to pneumonia, Dr. La Roche proceeds to point out the difference there exists between the distinctive symptoms and pathological conditions of pneumonia and malarial fevers. This difference, showing that, if we admit an intimate relationship, in cause and nature, to exist between the two diseases, we must admit, also, that from one and the same morbid agency are produced diseases differing widely in their symptoms, march, and anatomical characters.

In thus indicating the general purport of this portion of the essay before us, we have, we admit, scarcely done justice to the manner in which the author has treated the several important particulars in reference to the etiology and pathology of autumnal fevers and of pneumonia that are discussed in it. Our aim has simply been to indicate to our readers the general scope of the author's arguments to disprove the presumed identity between autumnal fevers and thoracic inflammations. The entire chapter is deserving of a careful perusal, comprising, as it does, much valuable matter, collected with commendable industry, and faithfully and clearly presented. In the section which treats of the causes of pneumonia will be found a series of interesting observations

in relation to the particular conditions under which inflammations of the thoracic organs are most liable to occur.

In the sixth chapter, pneumonia and autumnal fevers are compared in reference to the power of acclimatization and the ages, sexes, and races of those most subject to be attacked.

Dr. La Roche shows that the exemptive power of acclimatization does not extend to pneumonia, though well marked in respect to the various forms and grades of autumnal fevers.

In regard to the liability of different races to the two diseases, it is shown, that while the negro is, to a greater or less extent, exempt from autumnal fevers, he is as subject as the white to attacks of pneumonia, if, in fact, not more so.

"We are scarcely less justified," Dr. La Roche remarks, "in seeking for proof of dissimilarity between the two diseases in the difference of liability to each of the two sexes. As regards pneumonia, males may furnish generally a larger number of cases than females, and the disease in them may assume frequently its most severe character. But there are facts sufficient on record to warrant the conclusion, that this greater prevalence of the disease in the first-mentioned sex is not the result of an inherent susceptibility, but is due, when it occurs, to a series of fortuitous and modifying causes, more particularly to the circumstance that males—owing to the nature of their avocations and mode of life—are usually more exposed than females to the causes of pulmonary inflammation; and that in places where exposure is equal in both sexes, the disease manifests itself as frequently in one as in the other. On this subject, statements, for which we are indebted to Grissolle, Chomel, Williams, Valliex, and others, can leave no doubt on the mind of the unbiased inquirer, so far as regards Europe. For, besides that, in rural districts, where women are as much exposed as men, the disease does not manifest itself more frequently in one sex than in the other; in prisons, for example, where the material conditions of life are similar for all the inmates, the number of females attacked equals that of males. Nor should it be forgotten, that among children, who are exposed to the same influences, the disease has usually been found to bear with equal severity on the two sexes. Similar observations have been made in this country and elsewhere.

"In regard to malarial fevers of various grades or varieties, from the simple intermittent to the deadly and malignant yellow fever, we arrive at different conclusions. In these males, excepting in some epidemics mentioned by Musgrave, Catel, Rusz, and under circumstances of a special kind, are more frequently affected than females; and, as a general rule, it may be stated that, when these are attacked, they have the disease in a milder form. That this comparative immunity on the part of females may, in some measure, be due to their more temperate habits, and to their being usually less exposed to the deleterious influence of night air, or, perhaps, as is presumed by Copland, to the state of the female constitution, during the period of uterine activity, is doubtless true; but it is equally certain, that, after making every possible allowance for the efficiency of these causes of resistance, we still find enough to convince us that females are far less obnoxious to the impression of the febrile poison than individuals of the other sex."

A difference of susceptibility to the two diseases, at different periods of life, is next adverted to. Thus, while the young and old are comparatively little amenable to the influence of the causes productive of autumnal and periodic fevers, pneumonia is in them a very frequent disease.

The well-known effects of the depressing passions and emotions, as well as of anger and of other of the exciting ones, as predisposing and exciting causes of fever, and their inoperativeness in the production of an attack of pneumonia is pointed out as another evidence of the difference between the two diseases.

The prevalence of fevers and pneumonia at the same time, and in rapid succession, upon which much stress has been laid as an evidence of their intimate relationship to each other, furnishes, as Dr. La Roche shows, no support to the doctrine attempted to be based upon it.

"Already, in the opening chapter," he remarks, "attention was partially called to this circumstance, and enough was perhaps then said to justify the inference, that nothing favourable to the idea of the identity of pneumonia with periodic fevers could be made out of the fact that the two diseases coexist, or that the former succeeds to the latter. It was there remarked that inflammation of the lungs prevails very extensively in places where remittent, intermittent, and other fevers of kindred nature are not observed, that it shows itself usually at seasons of the year when, if the ordinary causes of fever had at any time exercised their influence, they have been effectually or temporarily removed; that in places where periodic fevers prevail during a certain period of the year, they are put a stop to, in all their varieties, by frost. It was shown that while fevers are thus arrested, pneumonia, which had coexisted with them, instead of disappearing also, continues to prevail as it did before the accession of frost, or even is observed to spread more extensively; and that as the cause of the fever had thus been destroyed—as proved by the entire absence of its legitimate effects—the cases of pneumonia which continue to show themselves after the accession of frost, cannot be referred to the morbid agency of the cause in question, but are due to the operation of some other morbid influence, over which frost exercises no control, and differing, consequently, from the former. It was stated that the same causes which give rise to pneumonia *after* a stop has been put to periodic fevers by frost, must be similar to those that produce the disease *during* the prevalence of those fevers and anteriorly to the occurrence of frost. It was, moreover, argued that, if the cause which produces pneumonia *after* that event must, for reasons stated, differ essentially from that occasioning the fevers thus arrested in their course, the cause giving rise to the cases that appear *during* the fever season, must also be different from the febrile poison; that hence, when the two diseases show themselves together, two sets of causes are at work; that from this difference of cause we have reason to infer the existence of a difference in the nature of the diseases produced; and that when pneumonia, in the regular succession of the seasons, follows on periodic fevers, after the accession of cold or frost, or at the period of atmospheric vicissitudes, it is not influenced in its production by the cause of those fevers. It appears, therefore, as the effect not of a gradual change from one form to another of the same complaint, but as the result of the creation of a different, or the continuance of an independent disease."

The chapter closes with a reference to the non-convertibility of pneumonia and autumnal fevers.

To understand the full force of the argument adduced from the non-convertibility of the two diseases, it is necessary to have a clear understanding of what is understood by the term convertible diseases. Is it intended to convey the idea of an actual change of one malady into another? or of the modification, in the course of a disease, of certain of its phenomena and the development of others, in consequence of which its characteristics become changed? or, is all that is meant merely the change *from* one disease *to* another?

The fact of the coexistence and succession of any two diseases furnish no evidence of their convertibility and consequent identity in the two first-mentioned senses. Fevers of an intermittent and remittent type may with propriety be adduced as examples of truly convertible diseases.

"Under much variety of aspect, as is remarked by a most eminent writer of this country (Dr. Drake), these fevers 'possess many deep-seated analogies and identities; they frequently change from one type to the other. Thus, an intermittent turns into a remittent, and the latter, assuming the type of the former,

is often seen to become, first a quotidian, then a tertian, and finally, a quartan. A simple intermittent may, in the third or fourth paroxysm, take on the character of a fatal congestion; and that which began with an aspect of malignity, sometimes emerges into simplicity and mildness; vernal agues attack those who, in autumn, had suffered under remittent fever, not less than those who had experienced the intermittent form; the sequelæ of all the varieties are almost identical: the same treatment, with certain modifications, is applicable to the whole.' Surely," Dr. La Roche remarks, "nothing of this kind is observed to occur in reference to many diseases, the identity of which is insisted upon on the ground that they coexist together, or follow each other in the same locality. The yellow and common autumnal fevers, though kindred zymotic diseases, and arising from malarial exhalations, are not, strictly speaking, convertible, though cases occur which exhibit symptoms characteristic of both, and the diseases may either blend together, or appear in rapid succession in the same subject. Remittents or intermittents never change into yellow fever, and *vice versa*; their anatomical characters and sequelæ are not the same; those attacked with yellow fever in the autumn, are not affected with ague the following spring, and the aspect of the two diseases are not the same. In a word, they do not possess deep-seated analogies and identities similar to those existing between the various forms of ordinary paludal fevers. Still less allied to autumnal fevers in those respects, are typhoid or typhus fevers, and true Oriental plague, which, under the fostering hands of some unitarian pathologists, have been admitted into the family of periodic marsh miasmatic fevers, there to keep company with yellow fever, Asiatic cholera, typhoid pneumonia, to say nothing of phrenitis, gastritis, gastro-enteritis, hepatitis, and, for aught I know, peritonitis, cystitis, tonsillitis, nephritis, gout, rheumatism, and the rest of the forty or fifty different varieties of diseases into which, as we are told, the nosology of southern fevers might be arranged, and which constitute so many links in the chain of morbid action, extending from a septenary ague up to the most violent and fatal form of yellow fever. At a still greater distance, in these same respects, from autumnal fevers do we find pneumonia. So far as I am aware, the physician is yet to be found who has discovered that pneumonia and periodic fevers are convertible diseases in the way that the several forms of these have been shown to be. A case of intermittent or remittent is not converted into pneumonia by injudicious treatment, or a case of pneumonia transformed into a mild intermittent by proper, or into malignant remittent by improper remedies; their sequelæ are not identical. Those who have pneumonia in the autumn or winter, do not run as much risk of suffering from vernal agues or summer remittents, as those who have passed through these complaints; they do not possess many deep-seated analogies and identities, and the same treatment would require more than trifling modifications to make it applicable to both.

"In saying this much on the subject," Dr. La Roche adds, "I am far from denying the change from one disease to another. Such changes are of daily occurrence, and are observed in regard to almost every complaint to which the human system is subject. A case commences with symptoms of common remittent or intermittent fever, and at its close exhibits phenomena appertaining to yellow fever. In other instances the reverse occurs, cases of yellow fever ending with symptoms of periodic fever. Typhns, typhoid, or pestilential fevers terminate sometimes in the same way; while, at other times, cases which at their outset presented the characteristics of common intermittent or remittent fever, assume, as the disease progresses, those of the fevers mentioned. So also with regard to pneumonia and fever. Cases of the former not unfrequently, under peculiar endemic or epidemic influences, end with symptoms of autumnal, as also of yellow, or typhus, or typhoid fever. On the other hand, cases of periodic or other fevers sometimes terminate with symptoms of pneumonia.

"Doubtless changes of the kind may, strictly speaking, be regarded as cases of conversion; but the conversion herein noticed is not that of one form of a disease into another form of the same. It cannot be occasioned by an increased

force in the cause of the disease first existing, by a difference in the state of predisposition of the person attacked, or by the peculiar mode of treatment pursued. It is not the result of a mere modification of one and the same thing; in a word, it is the substitution, partial or complete, of one disease for another. Such conversions of diseases are not of rare occurrence. They are, indeed, familiar to all practitioners. They often lead to evil or fatal consequences, or simply to the removal of disease without restoration to health."

The seventh and concluding chapter treats of the complication of pneumonia with autumnal fevers. This complication of the two diseases forming a hybrid affection, which must not be considered as a peculiar form of either. It is admitted that in miasmatic regions the complication alluded to frequently takes place, causing pneumonia there—like very many other diseases—to assume, to a greater or less extent, the periodic type. The pneumonic symptoms and the malarial fever are concomitant diseases in the same individual, and affect the patient according to the type of the latter; in paroxysms, if it is intermittent, in remissions and exacerbations, if it is remittent; that is, the pneumonic symptoms are always exasperated during the presence of the fever, and mitigated during its intermission or remission. In the combination of phenomena exhibited in the cases referred to, of pulmonary inflammation and periodic fever, Dr. La Roche maintains that we are not justified in assuming the identity of the two diseases, or that the one is a modification, or really and substantially nothing more than a peculiar form of the other. To him, as to some of the writers he refers to, and to many more that might be cited, all such cases furnish illustrations of the coexistence of two distinct complaints, produced by distinct causes, having distinct seats and characters, and governed by different laws, but which often modify each other to a greater or less extent.

The complication of diseases more or less distinct in their nature, and the modifying influence of epidemic over other complaints, Dr. La Roche shows to be facts well known to etiologists and pathologists. He also refers to the fact that diseases arising from various species of malaria, but marked by distinct characters, and governed by different laws, combine with each other, and present groups of phenomena which, though they have given rise to considerable discussion, and been subjects of angry controversy, must be viewed as the effect of such complications, and not as mere modifications of one and the same disease. Thus, diseases due to specific contagious poisons amalgamate together, or with other complaints, and form hybrid complaints, or exist together in the same subject.

Dr. La Roche admits that pneumonia, like other inflammations, sometimes assumes a periodic type, independently of a malarial influence. Of this there can be no doubt. The manifestation of a periodic character, he insists, can lend no support to the idea of identity, as regards causation and nature, of pneumonia with malarial fevers, of which periodicity, partial or complete, constitutes a characteristic element; unless we are prepared to assert that all diseases in which we notice perfect or imperfect remissions—whether observed in districts of country subject to malarial complaints, or in places totally free from these—are the products of the same cause as remittent and intermittent fevers, and consequently really and substantially nothing more than peculiar forms of them. From numerous facts upon record, and the legitimate deduction from these, it will admit of a reasonable doubt whether the element of periodicity does really belong exclusively to febrile diseases of a malarial origin.

"So far from it," remarks Dr. La Roche, "the periodical is as much a natural

type as the continued. It characterizes many of the phenomena of health, and exhibits itself in the physiological play—both as regards progress and intensity—of many of the functions; in the processes of secretion, elimination, and calorification; in the operations of the nervous system; in muscular contraction; in the action of the heart, &c. Intermittence, indeed, may well be viewed as an element essential to the existence of the normal actions of the economy. What is more, it adheres to these actions in their passage from the state of health to that of disease; and may, therefore, be recognized as an element of this state also. It stands as an illustration of the great law of periodicity which regulates all the vital movements."

Dr. La Roche next shows that the success of the anti-periodic treatment in pneumonia—supposing it true—is no proof of the identity of the disease with periodic fevers. In the course of this section doubts are expressed, and, we believe, well-founded ones too, as to the propriety and success of the abortive plan of treating febrile diseases, by means of quinia, given in scruple or even larger doses, with or without preparation, at the outset of the attack, with the view of arresting their progress.

The chapter closes with a short recapitulation of the reasons for believing that the hypothesis of the identity of pneumonia with autumnal fever is not supported by facts and solid arguments.

The work of Dr. La Roche is deserving of an attentive perusal on the part of every one who would make himself master of the facts and observations bearing directly upon the important etiological and pathological subjects discussed by its author, as they are recorded by the best medical authorities of the present and former times. These will be found interesting and instructive not only as they throw light upon the question of the supposed identity of pneumonia and autumnal fevers, but, also, in reference to many collateral points of deep interest and importance, bearing upon the causes and character of the diseases referred to. Many of them, also, derived from medical works of somewhat difficult access to the mass of the profession. The very profusion with which Dr. La Roche accumulates from every reliable source, facts to sustain each limb of the argument levelled by him at what he believes to be erroneous views of the etiology and nature of pulmonary inflammation, although entertained by writers of no mean authority in our profession; his desire to impress on the mind of his readers an idea of the appositeness and authenticity of these facts, and to enable them to verify their accuracy, by presenting the facts mostly in the language of their reporters, and pointing out where the record of them is to be found, constitute in our estimation no trifling recommendation of the work before us, and materially enhance its value and interest. The patient and laborious research of the author thus placing within the reach of every physician the results of the medical experience and observations of the past and the present; saving him the time, the labour, and the expense of consulting many books to learn what is actually known in reference to the important questions of which he treats—what views have been already shown to be erroneous, and upon what points we still remain in ignorance.

Let us now direct our attention to the author's views in relation to the existence and morbid agency of malaria.

In regard to the objections that have been urged to the existence of malaria as a cause of fever, Dr. La Roche maintains that the appearance of the disease in localities where no marshes exist does not disprove the agency of a poisonous exhalation existing in the atmosphere:—

"The writings," he remarks, "of Chervin, Boudin, Nepple, Maillot, Segond, Faure, &c., which are usually referred to in support of the strictly paludal

origin of fevers generally, will show that, even in the opinion of these authors, malarial exhalations of various degrees of virulence may, and do often proceed from surfaces presenting characters very different from those appertaining to ordinary marshes. Indeed, at the present day, this existence of malarial exhalations, and their efficiency in the production of fever, independently of the presence of marshes, properly so called, and their elimination from sources of various nature, and differing much in external appearance, is almost universally admitted—quite so, I think, by all who have taken pains to investigate the subject in all its bearings; for, though they are firmly convinced of the reality of the morbific agency of such effluvia, they know that fevers prevail sometimes even in arid places with want of surface-water, where the soil is rocky, or sandy, parched, and deficient in vegetation, and where, in a word, circumstances generally are, in appearance at least, unfavourable to the decay of organic matter. On this subject, the facts recorded by Ferguson, J. Davy, Craigie, Brown, Currie, Humboldt, and others, can leave no doubt. Nay more, it is almost as generally acknowledged, that the malignant forms of such diseases are never produced by the effluvia of genuine marshes, but are the products of other miasmal sources; while, on the contrary, fevers known to arise from marsh exhalations, are never produced by the effluvia which occasion the other forms of the disease. Hence, when ordinary or malignant autumnal fevers occur in places where no marshes properly so called exist, it is of no avail to cite the absence of these as an evidence of erroneous conclusions; far less of absurdity, on the part of those who attribute such fevers to miasmatic exhalations. The latter writers know, fully as well as their opponents, that the existence of a marsh is not indispensable to the manifestations of the effect in question; but, unlike them, they are perfectly aware of the fact that morbific effluvia, of the most deadly character, too, may, and do arise from sources which bear no resemblance to a marsh. In the words of an intelligent writer, we may say: ‘Marshes and swamps are far from being the only sources of miasmata. The foul shores of the sea, the moist slime and mud of the banks of great rivers, and of mill ponds; the mire and mud of the unpaved streets, ditches, lanes, and passages of great towns and cities, villages, &c., particularly the cellars and damp abodes where the poorer classes are most frequently doomed to dwell—the moats of garrisons, &c.; the soil where certain hospitals, barracks, or encampments are situated; the wells and cellars, damp pools and dungeons of prisons, and the holds of ships, are all calculated to emit pyrexial effluvia from the moist earth, mud, and filth, which are mostly to be found within their precincts.’”

The non-detection of malaria in the atmosphere of insalubrious localities is, Dr. La Roche insists, no evidence of its non-existence and morbific agency. Chemists, as he remarks, have not been more successful in the discovery of the poison of other zymotic diseases, smallpox, scarlatina, measles, hooping-cough, &c., and yet we know that they must at times float in the air, since they produce their respective morbid effects in individuals who breathe that tainted medium; and under circumstances, too, which forbid the supposition that those attacked could have received the infection by direct exposure to, or contact with, the sick.

Dr. La Roche then proceeds to show that fever is not due to the morbific action of any of the known gases floating in the atmosphere, or to an excess or deficiency of one or more of the known constituents of the latter in unhealthy localities. But, while admitting the truth of this, we can find, he remarks, no valid reason for denying the very existence of a specific febrile cause; for, from the circumstance that malaria cannot justly be identified with any of the known gases, it does not follow that the atmosphere of sickly localities contains no extraneous material to which autumnal fevers are to be ascribed. Some statements are then referred to, in reference to certain azotized flocculi, said to have been detected in the moisture of the atmosphere, and the dews of insalubrious districts, by some experiments performed in the

early part of the present century. These statements are deserving, however, of but little consideration. They do not of themselves, unsupported as they are by any extended series of observations, afford any evidence that the azotized matter referred to, even admitting its frequent existence, constitutes the febrile poison. It has been detected in air issuing from noted sources of vegetable and animal putrefactions, and which, nevertheless, did not give rise to malarial fevers, while, on the other hand, chemists have not unfrequently failed to detect azotized flakes in the air of localities where fever prevails more or less extensively.

Dr. La Roche infers the existence of malaria as the morbific agent in the production of fevers, from the character and condition of the localities in which these diseases prevail. Of the localities referred to, he presents a very full and accurate description.

The danger of an attack of fever, he shows, increases in proportion to proximity to such locations. If we approach to, or remain some length of time—occasionally only a few hours or even moments—in them, or in their immediate vicinity, we are stricken down with fever; if we avoid them, we escape.

A series of facts are adduced to prove that the morbific influence of these localities does not result from heat alone, nor from humidity, nor from a high dew-point, nor from heat and humidity combined, nor from vicissitudes of temperature, nor, finally, from a peculiar electrical condition of the atmosphere. We are not prepared to attack the correctness of either of the positions just enumerated—we admit that, of itself, neither of the circumstances referred to, is sufficient to account for the production of fevers in the localities where these prevail; we cannot, nevertheless, perceive that we are hence necessarily forced to admit the existence of a specific aerial poison, emanating—under the modifying influence of certain contingent influences—from organic substances during the process of decomposition. To the term malaria, however, when employed merely to express the morbific state or influence of the atmosphere of certain localities, whatever may be its precise nature and cause, there can be but little objection.

The innocuousness of some marshes, and of localities similar to those that are sickly, Dr. La Roche proceeds to show, are not evidence of the non-existence or non-agency of malaria. The exemption, he remarks, may be explained in various ways:—

"Sometimes it is due to the high elevation above the level of the sea of the places so exempted. At another time, the effect is attributable to the absence of a sufficiently high and long-continued atmospheric heat. In other instances, the circumstance is due to a very perfect and constant ventilation, and a very rarefied and pure character of atmosphere. In some instances, again, it may be explained by the peculiar geological character of the soil; the quantity and the quality of the surface water; or the proportion of sulphates the latter contains in solution. Sometimes, also, it is due to the rapidity of the river currents; the excessive and rapid dryness of the atmosphere during the hot season; the existence and extensive prevalence of refreshing and purifying winds, and often to the degree of desiccation the surface has attained by natural or artificial means; the degree of cultivation to which it has been carried, and other agencies of like import, as well as by the extent to which it is sheltered, by rich foliage and other means, from the action of the sun. So far as ships are concerned, the freedom from fever will often be found ascribable to the latitude in which they may be navigating; to the early period of the year in which they may be at sea, or otherwise employed; or to the absence of an epidemic constitution of atmosphere."

The leading causes of exemption from fever of certain localities, whose general characteristics would lead to the inference of their being malarial, are separately considered by Dr. La Roche; and, with his characteristic industry, he has brought forward in reference to each a large amount of facts to prove and illustrate its direct bearing upon the question under discussion.

The ensuing two chapters are principally occupied with an exposition of the more prominent of the facts which, in the estimation of the author, establish the existence of malaria, and its agency in the production of disease. In these chapters will be found an excellent digest of nearly all the important observations upon record illustrative of the conditions and localities favourable to the production of autumnal fevers, and of the means by which those conditions may be modified or changed, and the insalubrity of the locations abated or destroyed.

We cannot follow Dr. La Roche throughout the several branches of his certainly most able argument in favour of the existence of a specific aerial poison as the cause of autumnal fever; nor can we consider in detail the various facts adduced by him in support of his general deductions. Of the accuracy of these facts, there can be no doubt; how far they bear out the author in his views respecting the nature and source of malaria, we leave to the readers of the work before us to decide.

That we may do entire justice to the views of Dr. La Roche in regard to the etiology of autumnal fevers, and the arguments by which they are sustained, we present the twenty-six propositions that he believes to be legitimate deductions from all the facts and statements passed in review by him.

"1. The doctrine of malaria, though of ancient origin, and very generally admitted, has encountered, and continues to encounter, opposition.

"2. The appearance of autumnal or periodic fevers, where there are no marshes, properly speaking, does not disprove the existence or agency of malaria in the production of that class of disease, inasmuch as there is nothing to hinder morbid exhalations from being furnished by terrestrial surfaces of a different character, and no writer of any reputation has denied the fact of such occurrences.

"3. The constant association of these fevers with peculiar characters and conditions of localities, and their absence or cessation where these characters and conditions do not exist, or, having existed, have ceased to do so, through the operation of artificial or other means, lead to the opinion of the evolvement from these localities of some peculiar morbid poisonous substance from the soil, or the materials by which it is covered; and of the connection, as cause and effect, between this exhaled substance and the disease in question.

"4. The inability of the chemist to detect this malarial poison in the atmosphere of sickly localities, and to point out its nature, does not disprove its existence, inasmuch as other substances, the presence of which cannot be doubted, equally escape detection.

"5. Atmospheric heat alone will not serve to account for the production of periodic fevers of various grades and types; for these fail to appear in seasons when, and in places where, the thermometer ranges higher than at other seasons when, and in places where, they prevail extensively. Besides, instances are not rare when fevers have stopped though the heat continued unchanged, and apparently from the influence of a very high range of temperature.

"6. Nor can terrestrial or visible atmospheric humidity account alone for the effect under consideration. Though fevers often break out or prevail during wet weather, they usually cease when this humidity is at its height, and reign most generally during the drying process—often during very dry spells of weather.

"7. Fevers of the kind mentioned cannot be due simply to a high dew-point, for they exist and are rife when the latter is not higher than in healthy seasons.

"8. For reasons assigned, the efficient cause of fever cannot be sought in any peculiar modification in the electrical state of the atmosphere. This fluid, by its excess or deficiency, may and does, no doubt, exercise an agency in the matter; but that agency is evidently limited to placing the system in a proper condition to receive the impress of a morbid cause; for furthering, when deficient, the formation of the latter, or, when in excess, to neutralizing or destroying its effects. But, in all cases, the presence of such a cause is required before autumnal fevers can be produced.

"9. The same may be said of atmospheric vicissitudes. These may and do often occur, without periodic fever being the consequence; and, conversely, those fevers frequently occur without appreciable vicissitudes.

"10. The attack comes on too suddenly, and, not unfrequently, after too transient an exposure to evident sources of infection, without the possible occurrence of any other influencing agency; at other times, it occurs too long after a residence in, or visit to, places where the disease is known to prevail, to be the effect of any other cause than a morbid poison introduced into the system.

"11. The opinion of the existence and agency of such a poison will appear the more natural when we find that the danger of an attack is generally proportionate to the proximity to localities where these diseases prevail—the other agencies being the same beyond as within the sphere of their prevalence; that vessels on a sickly coast remain healthy so long as they do not approach the land; that they become again healthy by removing to a short distance, or by merely shifting their position; and that individuals from on board, who land, and those especially who sleep on shore, are almost certain of being attacked.

"12. The development and prevalence of fever on board of ships, when other vessels in the vicinity remain healthy; its occurrence only in limited parts of the under decks; and its being arrested by a proper system of expurgation, lead to the opinion of the generation and existence there of a morbid poison.

"13. The innocuousness of some marshes, of ships in a foul state, or of surfaces bearing a strong resemblance to others in which periodic fevers prevail, is no proof that exhalations issuing from sickly places or ships are not the cause of the disease; for, besides that the latter is often traced to some source of decomposition in a way to leave no doubt as to the agency of these, the exemption may be justly attributed to the existence, in some instances, or to the absence, in others, of a variety of necessary and concomitant circumstances. Fevers do not prevail beyond a certain altitudinal range; they require a certain amount of heat, and that this heat should be continued during a certain length of time; they require, besides, a certain amount of terrestrial humidity, no more nor less; or, at least, that the soil should have been well saturated before being exposed to the prolonged operation of the solar heat; also, a close and still atmosphere, and other contingencies adverted to. Without these, they do not appear to show themselves, how favourable soever to the generation may be the condition and nature of the soil, or the substances by which it is covered or permeated.

"14. The malarial doctrine receives further support from the well-attested fact, that the cause of fever is carried by the wind from paludal and sickly localities to places situate at considerable distances; the latter places remaining healthy as long as they are to the windward of the others, and becoming sickly when they are to leeward. In such cases, the wind cannot have carried an amount of heat or humidity sufficiently different from that existing before to account for the effect produced. Nor can it act by occasioning a much greater amount than usual of atmospherical vicissitudes. Hence, the cause, to be thus wafted from one place to another, and to give rise to a particular disease, similar to that of the locality from whence it proceeds, must consist of a malarial poison, mixed with or suspended in the atmosphere.

"15. Equally favourable to the correctness of the belief, is the effect resulting from the upturning of soil in hot weather. The injury resulting from this operation, as illustrated by a wide diffusion of malarial fevers, and the great mortality often occurring on the levelling of streets, digging ditches and canals, cutting down bluffs, caving in of river banks, &c., cannot be accounted for on the principles advocated by the opponents of the malarial doctrine, and are

more easily explained on the supposition of a poison exhaled from the decomposed organic matter contained in freshly exposed earth.

"16. The effect of partial draining; of exposing a virgin soil to the action of the sun; of the imperfect desiccation of the soil after an overflow, and other kindred occurrences, in producing or increasing fever; and the converse effect of complete draining, of covering a marshy surface with water or sand; or masses of decaying organic materials, or any other unhealthy place, in the same way, or with earth, in putting a stop to fever, lead to the same conclusions.

"17. Agreeably to no other doctrine than the malarial, can we explain the greater sickliness of marshes formed by the mixture of salt and fresh water; for this mixture cannot increase any of those influences to which others attribute diseases thus produced or aggravated; while we can understand that the mixture may act injuriously, by furthering the decomposition of the organic matter which it saturates, as well as by the reciprocal destructive action of fresh water on the living beings contained in sea water, and, reversely, the destruction by the latter of those contained in fresh water.

"18. The limitation of the disease to a restricted locality, to a few streets or buildings, to one house, or side of a house, or one room, &c., bespeaks, as do like occurrences on ship-board, the existence of a local cause of infection, and, consequently, the exhalation from this of a morbid agent.

"19. The opinion of fever being due to the introduction into the system of a morbid poison, floating in the atmosphere of sickly places, receives a strong support from the analogy existing between their symptoms and anatomical lesions, and those resulting from the introduction of putrid organic matter into the circulation, or the inspiration of putrid vapour.

"20. The arresting or mitigation of fevers in sickly localities by a resort to proper hygienic means, disinfectants, washing, excessive heat, &c., lead to the same opinion; for these means operate in the same manner on other morbid causes, the effluvial nature of which is undoubted, while they have no efficiency in cases of diseases arising from other agencies.

"21. The effects of trees, walls, hills, buildings, curtains, &c., in arresting the transit of the cause of fevers, are equally favourable to the idea of that cause being a malarial poisonous substance contained in the atmosphere.

"22. Still more conclusive is the destruction of that cause by frost, for the latter cannot produce its beneficial effects by an action on any of the other agencies to which fevers are ascribed; while it is known to exercise the same destructive influence over other causes of a character similar to the one from which fever originates.

"23. The wide prevalence of autumnal fevers in certain localities; the great mortality to which they sometimes give rise; and the diffusion of some forms of them over a very large expanse of country, at a time, too, when the sensible qualities of the atmosphere do not appear to have varied in any important point from what they are in healthy seasons, afford an additional reason for attributing them to a toxic agent floating in the atmosphere.

"24. The transmission of the disease to the foetus in utero; its production from the internal use of the waters of marshes; the inability of such waters to sustain life in fish and other animals of the kind; the undermining effect of a malarial atmosphere on the system; the production by it of a state of cachexia, and its influence in shortening the duration of life, indicate the existence and agency of a poisonous substance transmissible, in the one case, like other morbid poisons, by the mother to the child she bears in her womb; in another case capable of solution in the water which helps to its generation; and in others, again, endowed, like well-known poisons, with the power of gradually occasioning peculiar and injurious changes in the blood and vital organs.

"25. The neutralizing influence exercised by the poisons of some zymotic diseases over the agent producing malarial fever, would seem to indicate the existence of a close analogy between the latter and the former. The same remarks are applicable to the pathogenic antagonism existing between malarial and typhoid fevers.

"26. Lastly, from all that we can gather respecting the origin, mode of pro-

gression, and phenomena of autumnal fevers, the nature of the localities they visit, the circumstances under which they appear, the agencies which promote their development, or retard or arrest their progress, we may conclude, without fear of error, that everything tends to connect the morbific agent, of which autumnal fever is the offspring, with the products of the decomposition of organic materials; requiring as it does, for its generation, the action of the very same agencies which are necessary for that decomposition. Like the latter, it requires the presence of the above materials; like the ordinary decomposition of these, the febrile cause requires for its generation a more or less prolonged continuance, and a certain degree of atmospheric heat; it requires, also, a certain amount of moisture. In the one as well as the other process, an excess of this moisture prevents or arrests its progress; in the one as well as the other, a total absence of the same produces a like preventive or destructive effect. The generation or diffusion of the febrile cause is promoted by a calm and close state of the atmosphere, and retarded, prevented, or modified by free ventilation, elevated situations, and a pure quality of the atmosphere. Like ordinary decomposition, the process by which the febrile cause is produced, is retarded by cold, and arrested by frost, as well as by intense heat."

D. F. C.

BIBLIOGRAPHICAL NOTICES.

ART. XVIII.—*Reports of Institutions for the Insane.*

1. *Of the New York State Asylum*, for 1851 and 1852.
2. *Of the New York City Asylum*, for 1851 and 1852.
3. *Of the New Jersey State Asylum*, for 1851 and 1852.
4. *Of the Pennsylvania State Hospital*, for 1851 and 1852.
5. *Of the Frankford Asylum (Pa.)*, for 1851 and 1852.

1. ALTHOUGH the report for 1851, by Dr. BENEDICT, of the New York State Lunatic Asylum, is less elaborate than that which preceded it, and a considerable portion of it occupied by an exposition of the necessity of new apparatus for heating the buildings, and other subjects of comparatively local interest, yet it furnishes us with some items of value in the physical department of the profession.

	Men.	Women.	Total.
Patients at the commencement of the year	202	227	429
Received in the course of the year	185	181	366
Whole number	387	408	795
Discharged, including deaths	167	193	360
Remaining at the end of the year	220	215	435
Of the patients discharged, there were cured	58	54	112
Died	24	24	48

Applications for the admission of forty-seven patients, of whom sixteen resided in other States, were rejected.

The proportion of recoveries is smaller than usual, "for the reason," in the words of Dr. Benedict, "that we have been cautious in pronouncing a case recovered, though apparently well. We place all the cases of insanity from intemperance, from epilepsy, from general and gradual impairment of the faculties by age, and paroxysmal cases, though leaving the institution *well*, under the head of *improved* instead of *recovered*. The reason is obvious; there being no certainty that they will remain well for any length of time." This is "drawing the lines" a little closer, in regard to recoveries, than they have sometimes been drawn; as, for example, in an old report of one of our American asylums, in which one patient is recorded as "discharged—recovered," some six or eight times in the course of the year.

"The perfection and permanency of recoveries not unfrequently is cause of doubt and anxiety. Of the 1,300 recoveries of the past nine years, 206 have been readmissions. Of the 51 readmissions of this year, 11 were persons who had been discharged well, in 1850. Two of these 11 were discharged recovered, in 1846, and 1847, one in 1847 and 1849, one in 1846, and two in 1849, making, in 11 persons, 20 recoveries, and 31 admissions."

The foregoing extract contains a detail which is too often neglected by the writers of these reports, but which is absolutely necessary to convey an accurate idea of the curability of insanity to the uninitiated reader.

Of the 112 cases of recovery, the duration of insanity before admission was one month and under, 36; two and three months, 44; four to seven months, 18; seven to twelve months, 9; over twelve months, 3; unknown, 2.

The time of residence at the Asylum, of the same cases, was—two months and under, 10; three months, 6; four to seven months, 54; seven to twelve months, 27; one to two years, 13; two years, 2.

"Dysentery, diarrhoea, and erysipelas," continues the report, "are the diseases with which we have to contend most frequently, and when our ventilation shall be improved we hope to see these disappear. We have had, during the year, 41 cases of dysentery, 25 males and 16 females. Duration of the disease varied from three to twenty days; average, nine days. One case in December, 1 in February, 3 in April, 1 in May, 1 in June, 2 in July, 23 in August, 10 in September. Fifty-five cases of diarrhoea; 23 males, 32 females; duration from two days to two months. These cases occurred during the severe months with those of dysentery, 30 of them in August. Twenty-four cases of erysipelas—9 males, 15 females; 3 of them were in December, 1 in January, 6 in March, 3 in April, 4 in May, 2 in June, 1 in August, 1 in September, and 3 in October. Average duration, eleven days. Six cases of typhoid, 3 of remittent, and 1 of intermittent fever. Acute affections of the lungs have been rare."

Causes of death.—Dysentery 6, diarrhoea 1, erysipelas 1, phthisis pulmonalis 11, chronic insanity 10, acute mania 1, general paralysis 2, epilepsy 5, pleurisy 1, malignant pustule 1, rheumatism 1, intemperance 1, suicide 5.

"The general prevalence of the suicidal propensity which was mentioned in my last report (and quoted in our former notices) as subsiding, returned with increased intensity, and continued throughout the winter and spring. In one case the act was committed soon after the admission of the patient, in whom there was no knowledge of the existence of the propensity. Another had been, during a residence of many months, remarkably cheerful and happy; an attack of erysipelas of the face confined him to bed, and rendered him very uncomfortable, and, at the height of the disease, he suspended himself from his window. All the suicides were by suspension from the window-bars, except one. To guard against such accidents, we have now adapted to a part of them sash-locks, which secure the windows from being opened and exposing the bars."

Statistics from the report for 1852:—

	Men.	Women.	Total.
Patients at the commencement of the year	220	215	435
Received in course of the year	200	190	390
Whole number	420	405	825
Discharged, including deaths	205	195	400
Remaining at close of the year	215	210	425
Of those discharged, there were cured	92	64	156
Died	22	17	39

Sixty applications for admission were rejected.

"Of the 156 patients recovered, 92 are recorded *well*, and 64 *in usual health*. It may be proper to enter all these as *recovered*, they all having regained that state of mind possessed by them before their insanity; and yet many of them cannot be said to have that stability of character accompanying a sound mind. Under this head, *usual health*, we place that large class of weak-minded persons who run mad after every novelty, and again recover their equilibrium by seclusion in an asylum; and also others who leave apparently well, but are likely to become again deranged under exposure to the cause of previous attack. This division of recovered cases seems better than reporting the latter improved, as in our last report, which, in this respect, was a departure from established usage.

"The mortality for the past year is much less than for several previous years, while the amount of sickness has been about the same as last year. The principal diseases which prevailed during the year were: dysentery, 41 cases; diarrhoea, 45 cases, most of them in July and August; erysipelas, 21 cases; and typhoid fever 10."

Causes of death.—Phthisis pulmonalis 9, chronic insanity 6, epilepsy 5, phlegmonous erysipelas 4, opium-eating 3, dysentery 2, chorea 2, disease of heart 2, intemperance 2, acute dementia, general paralysis, apoplexy, and old age, 1 each. The number of deaths from acute disease is remarkably small.

"We are highly favoured in being able to report no deaths from suicide. This year only, since the second of the Institution's history, has passed with-

out such an accident. Nor do we report any deaths from exhaustive mania ('typho-mania,' 'phrenitis,' 'Bell's disease,' of other reporters). The number treated was eleven, some of whom had been greatly depleted previous to admission. We cannot urge our medical brethren too strongly to abstain from the practice of taking blood from insane persons. Our plan of treating very active insanity is directly opposed to depletion. Not one ounce of blood has been drawn from the 825 patients under treatment during the last year (fifty-four of these were of less duration than one month). We resort to stimulation in many cases with great freedom, and have seen the best evidence of its propriety."

Patients admitted from Jan. 16, 1843 to Dec. 1, 1852 . . .	3,499
Discharged, recovered	1,456
Died	407

To relieve the Institution from its most troublesome patients, such, too, as ought not to be associated with other insane persons, Dr. Benedict recommends "the erection of a hospital for 250 patients of the male sex only; to be carefully constructed, and fitted for the ultimate occupancy of lunatic criminals only; but to be used, until needed exclusively for this purpose, by criminal and homicidal lunatics, and drunkards." The suggestion is one well worthy of the attention of the public authorities in all the large States.

A scheme of moral treatment, including religious services, employment within doors and without, plays, tableaux, theatrical exhibitions, fairs, excursions, &c. is actively pursued. "The Opal," a magazine edited by the patients, is continued, and, by its more than three hundred exchanges, furnishes a great fund of transient reading matter, while the profits accruing from it during the year are sufficient to add several hundred volumes to a permanent library.

The legislature has appropriated thirty thousand dollars for the improvement of the means of heating and ventilating the buildings of the Asylum.

	Men.	Women.	Total.
2. At the New York City Lunatic Asylum, Blackwell's Island, the number of patients on the 1st of January, 1851, was	200	264	464
Admitted in course of the year	216	225	441
Whole number	416	489	905
Discharged, including deaths	183	205	388
Remaining, December 31, 1851	233	284	517
Of those discharged, there were cured			208
Died	37	43	80

Of the cases discharged, ten were delirium tremens, all cured.

Causes of death.—Consumption 25, general debility 15, paralysis 11, chronic diarrhoea 8, epilepsy 5, apoplexy 4, dysentery 3, old age 2, pneumonia, phrenitis, carcinoma, hydrothorax, continued fever, gastritis, and albuminaria, 1 each. Of the patients admitted, 98 were natives of the United States, and 343 of foreign countries.

A considerable portion of Dr. RANNEY's report is devoted to a history of the improvements of the Institution during the preceding five years—improvements, the result of which is that, "the very worst class of patients are as comfortably situated, at present, as were the best class in 1847."

Dr. R. suggests to the philanthropic a field for the useful employment of their benevolence, in taking charge of the poor insane, who, recovered from their mental disorder, are discharged from the Asylum without pecuniary means, or a place of employment. We most cordially "second that motion," and recommend it to the consideration of the benevolent in all places where there is a large institution for the insane, among the patients of which there are many from the poorer classes. Associations for the purpose alluded to have been formed in Europe, at Eberbach, in the Dutchy of Nassau; at Stephansfeld, near Strasbourg; and at Vienna. It is said that they have been eminently useful.

Dr. A. V. Williams, one of the Visiting Physicians to this Asylum, resigned his place at the close of 1850.

Report for 1852:—

		Men.	Women.	Total.
Patients, January 1, 1852	.	233	284	517
Admitted in course of the year	.	241	254	495
Whole number	.	474	538	1,012
Discharged, including deaths	.	248	237	485
Remaining, December 31, 1852	.	226	301	527
Of those discharged, there were cured	.			248
Died	.	70	60	130

Of the persons admitted, 102 were natives of the United States; 1, of Canada; 2, of Nova Scotia; 3, of Jamaica; and 387 of various European countries.

Of the cured, 10 were cases of delirium tremens; 3, of febrile delirium; and, 1, of typhus fever. The last two classes are placed under the head of *improper subjects*; as, also, are two cases of epilepsy, discharged *improved*, and four persons *not insane*.

Causes of death.—General debility 38, consumption 26, paralysis 15, typhus fever 10, diarrhoea 6, old age 5, paralysie générale 5, epilepsy 4, typhomania 3, apoplexy 3, mania 2, delirium tremens 2, dysentery 2, phrenitis 2, convulsions, pericarditis, laryngitis, pneumonia, erysipelas, and dropsy, 1 each.

The increase in the number of deaths over that of 1851 is attributed "almost entirely to the admission of improper subjects." In September, there were seven deaths of patients admitted within the month—all from long-standing diseases—not one of which ought to have been sent to the Asylum. The only endemic form of disease was from the 20th of November to the 15th of December. During this period twelve cases of typhus fever occurred, from which there were three deaths, one of this number being a highly valued attendant of the hall in which the disease originated. The only assignable cause for its production was a change of water. The main pipe for the conduction of the Croton water to the island having been broken, the supply was obtained from a well under one of the wings of the Asylum. On the reintroduction of the Croton, the disease disappeared."

"Two years and seven months have elapsed since a suicidal death occurred in this institution."

After a long struggle in the attempt to free the Asylum from penal convicts as attendants upon the patients, they have at length been entirely banished from the wards of the main building. "The experiment has proved," according to the report, "beyond all cavil, that this change has not increased the expense." Thus the great argument for the employment of such nurses has been effectually demolished. Yet, at the time the report was written, they were still employed in the "Lodge"—where are the apartments of the most violent patients—and in the kitchen, laundry, &c. of the main building. Dr. Ranney urges their entire removal, for many plausible, and, at least to many persons experienced in the care of asylums, very obvious reasons.

The following case, of some importance in a medico-legal point of view, is mentioned in this report:—

"A patient, who committed homicide in the city, died last November. He became jealous of his wife, and killed the man whom he fancied was her paramour. The case was a remarkable one from the fact that, although he was actually insane at the time the deed was committed, yet, by the advice of a friend, he feigned another form of insanity. He believed that he had frequently seen Jesus Christ arise from the flame of a candle; that God had given him (who?) full power over the man (which?); but when examined, he pretended not to comprehend anything said to him, and for several weeks would only say, 'I don't know, sir.'"

3. Of the thirty-five pages of the annual report from the New Jersey State Asylum, for 1851, only six are occupied by that of its superintendent, Dr. But-

tolph, and half of these are devoted to improvements made, and additions required, to the buildings.

	Men.	Women.	Total.
Patients in Asylum, January 1, 1851.	86	76	162
Admitted in course of the year	50	52	102
Whole number	136	128	264
Discharged, including deaths	51	42	93
Remaining, January 1, 1852	85	86	171
Of those discharged, there were cured	22	15	37
Died	4	4	8

The number of patients in the course of the year was greater, by forty-four, than that of the preceding year.

Experience has proved that it is cheaper to light the buildings by gas, made upon the premises, than by oil.

From the nearly thirty pages of the essay upon the nature, forms, causes, means of prevention, and general principles of treatment of insanity, we cannot well make many isolated extracts. Nor are there many which would offer much novelty to persons who have already read Spurzheim or Combe. The following remarks upon attempts to define insanity are very just, irrespective of phrenology:—

" From this (the dependence of mental integrity upon the integrity of special physical organs) it will appear how utterly futile are attempts by physicians, physiologists, and jurists, to frame a definition of insanity so comprehensive as to embrace all supposable examples of the disease, and yet so particular as to be of practical utility in determining its existence in doubtful cases. Insanity, or mental derangement, being the opposite or counter state to sanity, or mental soundness; a knowledge of each individual standard of the latter must be had to enable us to exercise enlightened judgment of the existence and degree of the former in a given case. It may be remarked generally, therefore, that a state of insanity, or mental derangement, is that in which there is a departure, through disease of the brain, from the natural standard of thought and feeling of an individual, without his being conscious of the same, and in the loss of his ability to act freely in these circumstances. The expression of the sentiment embraced in this statement is deemed important, so far as it suggests the necessity, in each case, of a careful comparison of the supposed insane with the natural character of the individual, rather than a reliance upon a definition or rule of judgment that may not apply to his state or standard of mind.

" In criminal suits, involving the question of insanity, this rule or mode of procedure is quite as important to secure the ends of public justice, as to protect the rights of the culprit; because, conduct that would appear as the height of insanity in a majority of minds, may be in strict keeping with the standard of character in the person committing the offence, and indicate either an excusable degree of stupidity, or a most reprehensible state of depravity."

In regard to the question of isolation, we make the following extract:—

" When the mental derangement depends upon bodily disease of a temporary character, the patient should not be removed from home until a fair trial has been made for its cure; or, should it be very severe and more continued, he should not make the journey to an asylum under circumstances likely to incense it. Persons of advanced age, who are insane from the irregular decline of the faculties, or who are partially paralytic, but who have no dislike to their friends, and are quiet and manageable, may be as well treated at home as at a public institution. Again, very delicate females, who are only partially insane, but who cherish a strong attachment to home and friends, are sometimes unfavourably affected by the separation from them, and by association only with strangers. There may be yet other cases of this class, but there are more of which seclusion is of doubtful expedience, and can only be correctly determined by a careful consideration of all the circumstances attending them.

		Men.	Women.	Total.
Patients in the Asylum, January 1, 1852		85	86	171
Admitted in course of the year		60	61	121
Whole number		145	147	292
Discharged, including deaths		54	56	110
Remaining, January 1, 1853		91	91	182
Of those discharged, there were restored		19	26	45
Died		11	15	26
Whole number from opening of the asylum, May 15, 1848		264	251	515
Discharged recovered		81	80	161
Died		25	28	53

Twenty-five more cases were treated in 1852 than in any previous year.

The unusual number of deaths, the past year, was owing, "in part, to the great accumulation of chronic and enfeebled cases, and also from the occurrence of a dysenteric affection following the extremely hot weather of summer, and which proved fatal in nine instances of patients of this class." The other deaths were from congestion of the brain 3, epilepsy 4, consumption 4, chronic abscess, palsy, exhaustion, of acute mania, 1 each, and 3 from general exhaustion in dilapidated constitutions.

Dr. Buttolph urges the necessity of increasing the accommodations for patients by completing the original design of the building, in the erection of two additional wings. At one time, during the past year, the number of patients (208) was "more than benevolence would dictate, or than prudence would justify."

Stuart F. Randolph, Esq., a native of New Jersey, but for many years resident of New York city, has made a donation of two thousand dollars—with a pledge of five hundred more, should it be necessary—for the construction of a building, upon the asylum grounds, to be used as a museum and reading-room by the patients.

4. After long, repeated, and persevering endeavours to establish a State Hospital for the Insane of Pennsylvania, success has at length been achieved—mainly through the untiring energy of Miss Dix—and we have the pleasure of bringing to the attention of our readers the first two reports of the superintendent of the institution, Dr. JOHN CURWEN.

We are informed in the first that the "Lunatic Hospital of the State of Pennsylvania" is situated about one and a half miles north of Harrisburg, upon a farm of one hundred and thirty acres. The corner-stone "was laid by Gov. Johnston, on the 7th of April, 1849, and the building was delivered, by the architect and contractor, to the commissioners on the 19th of June, 1851." It "consists of a centre building, and a wing extending in a linear direction on each side. Each wing is so arranged that the second projection recedes twenty feet behind the first, and the third the same distance behind the second, so that the second and third projections are open at both ends, which renders them light and cheerful, and insures, at all times, a free, natural ventilation. The centre building is of three stories above the basement, or ground floor, has a large Tuscan portico, with a flight of twenty steps to the main entrance, and is surrounded (surmounted?) by a large dome, from which a very extensive view of the surrounding country is obtained."

The main wing, on either side, is of three stories, including the basement; the first receding portion three stories, and the second receding portion, intended for violent and noisy patients, two stories.

The whole building is warmed by air, heated, in the air-chambers in the basement, by steam passing through sixteen thousand feet of cast-iron pipes, which are connected with two cylinder boilers, each forty feet long and forty inches in diameter. It is lighted by gas, brought from the works of the Harrisburg Gas Company. It is abundantly supplied with water, and has, in its attic, four tanks of an aggregate capacity of twenty-two thousand gallons.

Thus, built upon one of the most approved models, and furnished with all

the means which experience has proved to be most convenient and useful for an establishment of the kind, the institution was opened on the 1st, and received its first patient on the 6th of October, 1851. The number admitted between that time and the close of the year was thirty-seven. One was "a boy, six and a half years of age, whose disorder of mind was caused by convulsions during dentition, and who is yet subject to a slight spasmodic affection; and another a girl of thirteen years, in whom the mental derangement arose from epileptic convulsions, but, since a severe attack of bilious fever, six months ago, the convulsions have not returned." One epileptic patient had died.

We now proceed to the report for 1852.

		Men.	Women.	Total.
Number of patients, December 31, 1851	.	24	13	37
Admitted in the course of 1852	.	65	53	118
Whole number	"	89	66	155
Discharged, including deaths	:	29	19	48
Remaining December 31, 1852	.	60 ¹	47	107 ¹
Of those discharged there were cured	.			13
Died	.			7

Causes of Death.—Exhaustion from acute mania, 1; paralysis, 1; latent pneumonia, 1; "exhaustion consequent on chronic mania," 4.

Dr. Curwen remarks:—

"Although the institution has been in operation more than a year, we have not yet found occasion to break through the rule which was adopted at the opening—never to use mechanical restraint, if it could by possibility be avoided. That cases have been received in which, by many, restraints would have been used, is freely admitted; but separation and seclusion for a few hours has generally accomplished the desired object, with much less irritation to the feelings of the patient, and less difficulty to the attendant."

The doctor's rule, however, literally interpreted, is somewhat too rigid. It admits of no exception. Mechanical restraints can, "by possibility," in every case, and always, be avoided. Yet there are patients to whom their application, even against the will of the party most immediately interested, is in accordance with, and the neglect of such application a dereliction from, the dictates of true humanity; to say nothing of those who entreat their care-takers to bind their hands, lest they destroy the life of themselves or of persons around them.

The following remarks, if not novel, are nevertheless true:—

"I feel that I am discharging a part of my duty towards the insane, in calling attention to an error which is very extensively prevalent, and which consists in the almost invariable resort to bloodletting in all cases of insanity. All hospital experience, not only in this country, but also in Europe, has proved that the loss of blood, in any form of insanity, is almost uniformly attended with unpleasant effects, prolonging the period of cure, and, in many cases, placing the patient hopelessly beyond the reach of any benefit to be derived from subsequent treatment. Insanity is essentially a nervous disorder, and must be treated as such; and the greatest care should be taken to distinguish between that excitement which is purely nervous, and the delirium caused by inflammatory action. When any doubt exists, the abstraction of a few ounces of blood by cups or leeches, carefully watching the effects, will enable the physician to judge of the propriety of the course he is pursuing."

Let no one condemn this opinion of Dr. Curwen, on the ground that it is hastily formed, or based upon the experience of but little more than one year in a new institution. Previously to his connection with the asylum at Harrisburg, he had been for several years the assistant physician of the Pennsylvania Hospital for the Insane.

¹ The report says 59 and 107—but such are not the results from the preceding data. The case of death by epilepsy, before the close of 1851, is probably retained in the number of patients at the beginning of the year.

The following extracts will show that the institution, even in its infancy, is as well supplied with the means of moral treatment as many have been in their adolescence, or manhood, and once more awaken our admiration for that benevolence, the copious current of which is now so freely running in the direction of the afflicted many who are suffering under psychic disorders.

"Religious services have been regularly maintained, on the Sabbath, during the whole year. * * * Evening prayers have also been regularly kept up during the year, to which all who feel inclined are invited to come.

"The Philadelphia fund for the benefit of the patients, collected through the instrumentality of that ardent friend of the insane, and of every benevolent work, Miss D. L. Dix, has already furnished essential advantages to the patients, in the use of a carriage and pair of horses, quite a number of musical instruments, two polyoramas, a large dioptric magic-lantern, with a number of slides, a small magic-lantern to be used in the wards, kaleidoscopes, backgammon-boards, and a number of other games, a large number of books, engravings, two large walnut book-cases, each capable of containing 250 volumes, and two globes. * * * A large piano, with an aeolian attachment, has been ordered for the chapel. * * * A certain portion of this fund has been placed at my disposal for the erection of a reading-room and museum for each sex on the grounds of the institution."

5. The number of patients in the Frankford Asylum, on the 1st of March, 1851, was 43; admitted during the year, 44; whole number, 87; discharged, including deaths, 35; remaining, March 1, 1852, 52. Of those discharged, 14 were cured and 6 died.

One died of fever, one of phthisis pulmonalis, one of exhaustion, one of effusion on the brain, and two by suicide.

"It is worthy of remark," says Dr. Worthington, "that the death from consumption is the first that has occurred among our patients from that disease for ten years past, especially as it is considered to be one of the most common causes of death among the insane.

Exhaustion is a term which has been used to designate the cause of death in a peculiar form of disease, which appears to consist principally of intense excitement of the nervous system, with a tendency to rapid prostration of the vital energies, generally terminating fatally in the course of a few days."

It is well, when one uses a generic term with a specific signification, to explain its meaning, as Dr. Worthington has done in this instance. It is very evident that his "*exhaustion*" is nothing more nor less than the "*typo-mania*," "*phrenitis*," "*Bell's disease*," "*exhaustive mania*," already alluded to. The same word, "*exhaustion*," is not unfrequently used by other reporters in, as we understand it, a very different sense. With them, we have always supposed it implied those cases of death in which there had been a gradual, but slowly-progressive wasting of the vitality of the body, without any evident, specific, organic lesion; in short, what other reporters still have called "*marasmus*"—a disease, by the way, which appears to have greatly diminished, since, although, according to the reports, it was in former years fatal to large numbers, not one case of death from it is mentioned in either of the reports reviewed in this article!

Dr. Worthington informs us that an unusually large number of suicidal patients were treated in the course of the year, and that six of them were cured.

One of the patients who died had been at the asylum about twenty-five years, and was 73 years of age; while, of the 52 remaining at the close of the year, 12 were upwards of 60. These facts, no less than that in regard to the exemption from pulmonary phthisis, are demonstrative of the salubrity of the location of the asylum, and of the excellence of the hygienic treatment.

On the 1st of March, 1852, there were 52 patients; admitted in the course of the year, 28; whole number, 80; discharged, including deaths, 24; remaining, at the close of the year, 56. Of those discharged, 15 were cured and 5 died.

"Of the five deaths, two were from phthisis pulmonalis, one of organic disease of the brain, one of epilepsy, and one of carditis. The two cases of con-

sumption were admitted with that disease, and died, one eleven days, and the other about a year after entering the institution."

Since the opening of the institution, in 1817, "eleven hundred and sixty-nine patients have been admitted; of whom five hundred and fifteen have been discharged restored, and one hundred and fifty-five have died."

Although the report before us is well adapted to the persons for whom it is most particularly intended—those who have friends at the asylum, and those who are seeking the benefits of such an establishment—yet the subjects treated, aside from those already noticed, furnish nothing of importance that would be new to our readers.

P. E.

ART. XIX.—1. A Text-Book of Anatomy, and Guide in Dissections, for the Use of Students of Medicine and Dental Surgery. By WASHINGTON R. HANDY, M. D., Professor of Anatomy and Physiology in the Baltimore College of Dental Surgery, &c. &c. With 264 Illustrations. Philadelphia, Lindsay & Blakiston, 1854: 8vo. pp. 810.

2. Elements of Human Anatomy: General, Descriptive, and Practical. By T. G. RICHARDSON, M. D., Demonstrator of Anatomy in the Medical Department of the University at Louisville, &c. &c. Philadelphia, Lippincott, Grambo, & Co., 1854: 8vo. pp. 734. With 269 Illustrations.

THE prominent object of the author of the first of these two works seems to have been to provide a text-book on anatomy for "dental students." Dr. Handy has observed that these gentlemen "are slow to see and feel the necessity of a knowledge of any more of anatomy than so far as the teeth and their immediate connections in the mouth are concerned." This he thinks a very narrow view to take, and is desirous that students of dentistry should aspire after a wider range of knowledge. He does not, however, intend his book for them only, but for medical students likewise.

The author's plan is sufficiently comprehensive. He first gives a general sketch of *organization*, together with the most notable peculiarities of organized, as contrasted with inorganic, bodies, and some of the special points of interest in connection with different classes of animals. The *elementary tissues* of the human body are next described. Finally, the different *anatomical regions*—the head, the trunk, and the extremities—are separately analyzed and explained; the associated organs being described, as far as possible, in their functional order and dependency.

We regret that we cannot commend the manner in which the author's laudable purposes have been accomplished. The book is voluminous enough to admit of full and accurate descriptions of the different tissues and organs of which the human body is composed. But, partly in consequence of the introduction of a considerable amount of matter which pertains rather to a text-book of physiology than anatomy, and which, under the circumstances, should have been omitted, or else very concisely disposed of, we find the descriptions of important subjects vague and meagre. To this sweeping generalization, we must make an exception in favour of that portion of the book which relates to odontology, to which seventy pages are allotted. But the same, or a greater, amount of information might have been conveyed within a much smaller compass. The illustrations, too, are generally very poorly executed, as if made years ago. In short, the student of medicine or of dentistry may, without much difficulty, provide himself with a more profitable aid and guide than this, from among the numerous text-books on anatomy with which he is already acquainted.

We are much more agreeably impressed by Dr. Richardson's volume. It is intended, as we infer from several passages, rather as a companion and assistant in the *dissecting-room*, than as a complete exponent of the state of knowledge upon the subject of anatomy in any of its departments; and, with this limita-

tion, we can speak favourably of the book. It is written in a plain, lucid style; the descriptions are generally accurate, and the illustrations are good. It is somewhat peculiar in respect to the nomenclature which the author employs; very many of the frequently-inappropriate-and-hard-to-be-remembered Greek and Latin names being discarded for simple English words. F. W. S.

ART. XX.—*Tableau of the Yellow Fever of 1853, with Topographical, Chronological, and Historical Sketches of the Epidemics of New Orleans, since their Origin in 1796, Illustrative of the Quarantine Question.* By BENNETT DOWLER, M. D., Corresponding Member of the Academy of Natural Sciences of Philadelphia, etc. etc. New Orleans, 1854. 8vo. pp. 66.

In the sixty-six pages of which this pamphlet consists, Dr. Dowler has contrived to condense more matter of an important and instructive character bearing directly upon the etiology and character of yellow fever, than would suffice, if fully developed, and examined in all its relations, to fill a goodly-sized volume of several hundred pages, and that, too, without any undue extension of subject or prolixity of style.

Amid the numerous points briefly touched upon by the author, as he passes his tableau rapidly before us, are embraced many important theses that we should be pleased to see more fully investigated by such as have the time and talent for the necessary research, and a mind habituated to strict logical analysis and deduction.

The first four chapters of Dr. Dowler's pamphlet are devoted to a brief, but still highly-interesting, chronological notice of the yellow fever epidemics of New Orleans, from their first occurrence, in 1796, to that of 1823, with a passing reference to the collateral range of these epidemics, their topography, and the insufficiency of any quarantine regulations as a protection against their influence.

Of the quarantine first carried into effect in New Orleans in 1821, Dr. Dowler remarks as follows:—

"The quarantine had been tried for three years, and yet two epidemics had occurred. The contagionists began to waver, and the joint committee of both houses of the legislature, disagreeing on quarantine, were discharged from the consideration of the same on the last day of November, 1824.

"Experience, which is ever opposed to false theory, convinced the public that quarantine was not only useless, but supremely mischievous in a city so exclusively commercial that a free, untrammelled trade, with freedom of ingress, egress, and progress, is not simply useful only, but a social necessity, involving the question of subsistence or starvation. Accordingly, on the 19th of February, 1825, the legislature repealed the quarantine laws which it had enacted just four years previously; at the same time, the quarantine grounds were directed to be sold. During the eight years that followed, without quarantine, the yellow fever diminished. It never equalled that which took place under the strict quarantine of 1822, when, according to some authorities, 2,000 died of that malady, although the records which I have examined, show only 808—a number sufficiently appalling in the comparatively small population then resident in the city, especially during the hot season; the whole reported mortality for the three months ending with October being 1,362. The ratio of mortality in the Charity Hospital was enormous; out of 349 admissions, 239 deaths, and only 98 cures took place. The maximum mortality upon one day rose to 80—of yellow fever, to 60."

The idea of preventing the occurrence of yellow fever in a city like New Orleans, or, indeed, any other in which there exists all the local causes necessary for its production, by the strictest quarantine, is, in the present state of medical knowledge, supremely ridiculous. Still, we should not be inclined to

advocate the entire abandonment of all quarantine regulations. It is certainly not prudent to permit a vessel, especially during the hot season of the year, to come to one of the wharves of a city, and there unload her cargo, before due precaution had been taken for her thorough ventilation, and to ascertain that no portion of her cargo was in a condition calculated to produce disease.

That the yellow and other malignant fevers may be introduced amid a community by the impure air generated in the hold of a foul vessel, especially when crowded with passengers, or having on board damaged goods of a certain description, cannot, we believe, be disputed. And, although the disease thus introduced may not spread beyond those engaged in unloading such vessel, or those who reside in the immediate vicinity of the wharf at which she lies, it, nevertheless, shows the importance of guarding, at all times, against the introduction of disease from this source, by judicious quarantine regulations.

"The geographical area of yellow fever in 1853," remarks Dr. Dowler, "compared with former invasions, was greatly extended, including Florida, Alabama, Louisiana, Mississippi, Arkansas and Texas—six States of the Union of vast territorial expansion, consisting of alluvial, diluvial, and tertiary formations, valleys, dry prairies, elevated plateaux, irregular terraces, low undulating hills and bluffs, and pine woods, interspersed with bayous, lakes, shallow basins, shaking prairies, large bays, dense cypress swamps, cane brakes, colossal grasses, inundated plains—a region undisturbed by volcanic action, where the geological or telluric causes of disease, if such be really regarded as causes, must be nearly uniform. Of these States, five are washed by the almost tideless Gulf of Mexico, presenting a vast depressed, marshy, sandy, shelly, rockless littoral, which curves from the Rio del Norte to the peninsula of Florida, deeply indenting the temperate, yet approaching the torrid zone, having low outlying islands in front, and numerous great rivers flowing through the background, bringing detrital matter from the high lands and primitive formations of several mountain chains, with tertiary limestones and coral reefs, trending along its eastern portion upon the Floridian peninsula.

"As immense importance has always been attached to the topography of yellow fever, which has been generally attributed to swamp-exhalation, it will be necessary to take a closer view.

"The elevated zone called the bluffs, a broken diluvial plateau, touching the Lakes Pontchartrain and Maurepas on the south, where it is most depressed, running north between the Pearl and Mississippi Rivers; the eastern shore of the latter, for hundreds of miles, with some interruptions, is overlooked by these impending terraces, which sustain forests of colossal magnolias, pines, oaks, liquidambers, &c.—a platform which sundry learned medical writers have indicated as a secure retreat from yellow fever, although neither the past nor the present justify this theoretical view. The epidemic of 1853 raged fully as much in this region as in the most depressed plains among the vast cypress swamps and salt-water marshes of littoral Louisiana. The epidemic was most fatal in this region, from its southern border up to the northern shore of Lake Pontchartrain, at Madisonville, Mandeville, Louisburg, and Covington, to the higher lands of Baton Rouge, Clinton, Port Hudson, Jackson, Bayou Sara, St. Francisville, Fort Adams, Natchez, Grand Gulf, Yazoo, and Vicksburg, not sparing the little villages of the pine forests.

"Thus the towns of Louisiana, Alabama, and Mississippi States, elevated from 20 to 400 feet, and more, situated on the tertiary formation, often in the pine lands, remote from swamps, being high, dry, and clean, suffered more, in many instances, than New Orleans, situated, as it is, upon the recent alluvium, or newer pliocene, touching the river in front, and dipping into the stagnant swamps of the cypress basin in the rear, and intersected everywhere with filthy gutters, sewers, ditches, or canals. The elevated zone of pine woods in northern Louisiana, and elsewhere in the adjoining States, forms a striking contrast to the depressed plains, cypress basins, and marshes of the southern delta. The epidemic of 1853, like previous ones, goes to prove that marsh-miasma is not the specific cause of yellow fever, as is generally supposed. The very towns which the lamented Drake recently designated, on theoretical grounds, as safe retreats from yellow fever, have suffered most from it."

After presenting a slight outline of a few towns in which the yellow fever appeared in 1853—some in elevated, some in depressed situations—Dr. Dowler remarks that, from this imperfect geographical enumeration, it is evident that *altitude* did not modify the epidemic of 1853. The general opinion that yellow fever appears only in depressed localities, or marshy plains, is contradicted by innumerable facts observed in this country as well as in Europe.

"Without," says Dr. Dowler, "the remotest wish to add another to the many futile expositions of the specific cause of yellow fever, I may be allowed to refer to two coincidents which attended the first and last epidemic eruptions of this disease in New Orleans. The original basin of Canal Carondelet was excavated in 1796; the capacious basin now being excavated for the same canal, about a mile from the city and from the former, was, to a great extent, dug out just before the epidemic. Frequent visits to this spot, with the view to its geological character, gave me opportunities of noticing whatsoever transpired in that district in the spring, before the epidemic appeared. The labourers, nearly all Irish, enjoyed very good health, although the emanations from the bayou, where the scene of labour lay below the terminus of the old canal, were most offensive. The water was so impure that many of the fish were killed, adding to the offensive effluvia. This, however, was attributed, not so much to the filth from the streets, as to the deleterious refuse matters from the gas-works of the city."

In reference to the generally-admitted influence of frost on the arrest of yellow fever, we quote the following facts as stated in the work before us:—

"About the 25th of October, a white frost appeared, for a few nights, at many of the interior towns of Louisiana, which was received as the harbinger of returning health, but which did not, in a marked degree, arrest the march of the epidemic. Warm weather, however, soon returned, and has continued to the present (the third week in December); but this did not revive the epidemic in places where it had declined, as in New Orleans, and many other places.

"In the town of Clinton, in the parish of West Feliciana, lying between the Mississippi and Pearl Rivers, 100 miles northwest from New Orleans, the epidemic began about one month before this frost, but at the latest dates (December 10th) it had not yet disappeared—75 having died out of 350 or 400 who did not fly from the town, as did about 1,000 persons. Several blacks died.

"In places," says Dr. Dowler, "where the epidemic had steadily and greatly declined, the return of absentees, and the influx of strangers, did not reproduce the epidemic, as was generally expected. The arrival of absentees, mariners, steamboatmen, and immigrants, amounting to about 50,000, in New Orleans, did not, in any appreciable degree, affect the ratio of declination. The mortality, from yellow fever, officially announced for the week ending December 18, 1853, being three, discloses a fact of supreme significance against the contagiousness of this disease, inasmuch as the city is, if any city can be, reeking with contagion."

The sixth chapter is devoted to a consideration of the mortality from the yellow fever of New Orleans and Mobile, during the epidemic of 1853. In the former city, the entire mortality is estimated, in round numbers, at 8,400.

"The maximum mortality of the yellow fever of 1853 arrived sooner in the season than usual, and is more truly represented by that of the plague in London, in 1665; namely, June 590 deaths, July 4,129, August 20,046, September 26,230, October 14,373, November 3,449; total, 68,817.

"According to the report of the Howard Association, published late in December, the Society had under its care during the epidemic of 1853, no less than 11,088 yellow fever patients—5,203 males, 5,885 females—of whom 2,942 died, and 8,146 were cured. Expenditure, \$159,190 32. Average for each patient about fourteen and a third dollars. Of this number (5,845), much more than half were Irish; German (2,890), nearly a quarter; French, 436; United States (716), less than one in sixteen of the whole. Hence, it appears that Ireland and Germany give 8,735; other countries, 2,353.

"The Association, during the epidemic, received, from all parts of the Republic, the sum of \$228,927 46; more, indeed, than they had need of, leaving a large surplus to be put out at interest for this charity.

"Omitting Spain and the United States, the yellow fever zone contributed but nineteen; the plague zone of the east, as Palestine and Greece, but seven to this formidable aggregate of 11,088.

"The predominance of female patients in the above enumeration is remarkable, inasmuch as that sex is the least susceptible to the yellow fever, and contribute to the mortality from this disease in a ratio greatly inferior to males. The most probable explanation is this—females preferred the Howard hospitals to the charity hospitals and the city hospitals established by the Board of Health."

From an examination made by Dr. Dowler of the interments during the prevalence of the epidemic, he arrives at the conclusion that the entire mortality of females, for 1853, was half as great as was that of males.

"This high ratio of female mortality is, however, one of the most extraordinary features of the late epidemic. Of 1,450 who died of yellow fever in August, September, and October, 1841, but 220 were females, or nearly one in seven. The ratio of mortality among children will probably be found enormously high from fever in 1853, compared with preceding years. This will appear obvious by Mr. Maginnis's list, compared with the following extensive analysis of the epidemic of 1841: thus—I made thirty-three series, each consisting of thirty persons; I then took the youngest one in each series (among these 990 dead), which gave these ages: 15—17—17—2—5—20—19—16—20—17—15—17—18—19—8—2—7—18—18—19—8—6—8—2—15—3—18—14—2—18—3—5—19. Scarcely an infant in the whole series.

"In order to test, approximatively, the ratio of infantile deaths from fever, I counted the ages of all fever victims who were interred in the following cemeteries on the 10th of August, namely, Cypress Grove, No. 1 and No. 2, and St. Patrick's, amounting to eighty-nine known ages, and two called "infants" (say ninety-one), among which were two aged 2; one aged 3; one, 4; which, with the two infants, make six out of ninety-one—a result which could not have been anticipated from the history of anterior epidemics, as the very young and very old, as well as women and negroes, had always suffered less than other classes."

Chapters seven and eight treat of the mortality of the epidemic in 1853 among the Creole population. From the latter chapter, we present the following interesting statements:—

"Although the word *Creole*, in its usual acceptation, means a white person, it applies to all races, as Creole negroes; it even applies to the inferior animals, and things.

"It is the resident city Creole, not the country Creole—not the Creole who migrates every summer to New York, London, or Paris—that may hope for as good health as is possible to humanity, while two or three hundred others daily fall victims around him; a definition which excludes a great many called Creoles, and one often forgotten in writing on the subject of yellow fever. Hence arises many apparent contradictions among authors who use the word in different senses.

"In former, still more than in recent times, has this fundamental distinction been overlooked. In a great majority of the works on yellow fever in the West Indies, and even in Louisiana, where Creoles are said to suffer from this disease, the true explanation is, that these persons are *Creoles of the country, not of the city;* or, at most, they reside in the latter occasionally, chiefly in the winter, and are, therefore, liable to the disease, though they usually have it in a milder form than strangers, and very rarely die.

"The simple fact of being born in New Orleans is not, in itself, protective. Thousands are thus born of uncreolized parents, who pass through the city, as immigrants, or who reside in the city in the winter only. Their return to the city might, in this way, swell the number of the so-called Creoles to hundreds every epidemic.

"City creolism is here used as a more precise and restricted term than acclimation, and denotes that immunity from yellow fever, whether transmitted from parents born and resident in the city, or that immunity acquired by long resi-

dence, with or without having suffered an attack of the disease; in any case, it is for the most part hereditary—the exception consisting of a susceptibility to a slight fever, as proved in 1853.

"City creolization is not peculiar to New Orleans, Mobile, Charleston, Havana, or Vera Cruz; but there are many new southern towns, or rather new aggregations of new-comers, where its influence is less obvious, certain, and uniform, or places where it may fail altogether.

"Congenital city creolism, that is, the constitutional modification incidental to the being born of Creole, or thoroughly creolized parents, with continuity of city residence, exempts the individual from yellow fever with nearly the same uniformity that vaccination prevents the smallpox or varioloid. The varioloid is, as all know, modified smallpox, happening to one who has undergone vaccination, or the smallpox previously, the frequency of which is probably as great as the frequency of yellow fever among city Creoles who have never absented themselves for one or more winters in northern climates.

"All born beyond the limits of the city are susceptible to yellow fever on coming into the city, or into a village when yellow fever prevails. In 1853, yellow fever has, for the first time perhaps, prevailed to some extent in the rural districts, remote from towns, among isolated persons who had not visited them. But, in almost all of these instances, the disease prevailed in aggregations of people which are virtually towns—as the plantations where the population is concentrated at one centre, often forming a village of from 100 to 500 or more persons. But, in the present state of our knowledge of the prevalence of yellow fever in the rural districts in isolated families, scarcely anything can be pronounced positively as to the extent or frequency of attacks among such as had no connection with towns as visitors. Whether, on the other hand, city Creoles who have removed to the country, who have never resided one or more winters in northern latitudes, have in any instance suffered an attack in the country, or on returning to New Orleans, is unknown. Second attacks are rare.

"Creolization in the city, with or without having had yellow fever, is equal, as a protection against yellow fever, to congenital or native creolism. This immunity is usually acquired in less than ten years, often in five, but to this rule very many exceptions occurred in the extraordinary or exceptional epidemic of 1853.

"City immunity, native or acquired, in similar cities—as New Orleans, Charleston, Mobile, Pensacola, Havana, Vera Cruz, and other places in the present limited yellow fever zone, is probably identical and mutually protective in all such places, while nativity in cities once in the yellow fever zone, in which yellow fever has not been prevalent for many years—as in Baltimore, Philadelphia, New York, Boston, Cadiz, Seville, and other places—affords no protection.

"City creolism, both native and acquired, is, to a great degree, as before remarked, hereditary, or transmissible from parents to children. At least, the exceptions to this law are few, and fatal results almost unknown, as may be proved by the bills of mortality, though this is, like many other indubitable truths, boldly denied, particularly since the decline of the epidemic of 1853—the most mortal, erratic, and extraordinary ever seen in New Orleans. It will have been seen what warrant the terrorists have for denying creolization.

"Setting aside the epidemic (of 1853), and reasoning from what is fully proved by the past—the best expositor of the present—it will be seen what little foundation there is for the utter rejection of creolism and acclimatization, which, in former years, was rung, and is still ringing, in the public ear.

"That many Creole children had, during the epidemic of 1853, a fever—a slight fever—yellow fever, if you please, known as such rather by the coexistence of the epidemic than from any severe symptoms among these children—a slight fever, never yet described, having generally but one paroxysm, lasting from six hours to one, two, or three days, scarcely ever requiring medication. That a few of these cases acquired an alarming violence, and even proved fatal, is most true—most deplorable. It will, no doubt, be found, upon a full examination of these fatal cases, that nearly all belonged to the following classes and conditions: although born in the city, their actual residence has not been

continuous, but has vibrated, like a pendulum between the country and the town, between northern schools and cities and New Orleans; or they have been born of unacclimated parents, whose continuous residence has been less than ten years, often not that of many months; or they have been born of parents one of whom is not acclimated; or, finally, they have been born while the parents resided temporarily in New Orleans (constituting a large class), and hence called Creoles, who, subsequently having come to the city, fell victims, and hence appear in the mortuary certificates as natives of the city."

We pass by the ninth and tenth chapters—the one on the liability of the African and Indian races to the yellow fever, and the other on the meteorology of the summer of 1853—both full, it is true, of interesting facts, to notice a remark made by Dr. Dowler in the next chapter, which treats of the sanitary condition of New Orleans. After the statement that—

"Enough is already known of the science of hygiene to warrant the conclusion that our crowding filth, a want of ventilation, incomplete drainage, and humidity, must be injurious to the health and detrimental to the physical comforts of the citizens of New Orleans. Healthy individuals, and still more the sick ones, need pure air, both when there is and when there is not an epidemic."

The author proceeds to notice the almost physical impossibility of any effectual underground drainage in New Orleans, from the peculiar position of the city below the level of the River Mississippi, and then remarks:—

"A gentleman recently from Paris, and, perhaps, the ablest quarantinist in New Orleans, informs me that in Paris, where underground drainage, with a soil elevation and declivity so vastly superior to New Orleans for this purpose, is mischievous. The Parisians find that the filth of the city accumulates in these subterranean sewers so as to send forth the most offensive and deleterious emanations. Hence, they prefer, after costly experiments, surface drainage, and wash off the filth into the Seine."

Now we think that there is some mistake in this. Paris has certainly not abandoned her plan of subterranean sewerage.

Underground drainage is invariably to be preferred, wherever there is no physical impediment to its adoption—as in New Orleans—to surface drainage. A proper construction of the sewers, together with their inlets, will obviate all inconvenience and danger that would otherwise arise from the accumulation of filth within them, or from the discharge of offensive or injurious gases at their openings. In a sanitary point of view, ample experience has shown that surface drainage is, excepting under very peculiar circumstances, in every respect, inferior to a properly-planned, and well-conducted system of underground sewerage.

In chapter twelve, we find some sensible remarks on the subject of contagion and infection in reference to yellow fever, and on the propriety of emigration as a means of avoiding the disease.

With the mass of those American practitioners who have had the most ample opportunities of studying the etiology of yellow fever, Dr. Dowler denies its contagiousness. All the facts he has been able to collect have convinced him that, beyond the range of the epidemic influence—of the infected districts—there is no danger of an attack, however close may be the contact with those labouring under the disease, who have been removed from the locality where they were attacked.

There is probably much truth in the following remarks of Dr. Dowler:—

"Epidemics have not only a limited period of increment and decrement in any one year, but they usually have more prolonged periods of increment and decrement, through series of years, often constituting what may be called a cycle of variable duration, after which they generally cease. So it was with the plague in Europe; so it was with the yellow fever in the Spanish peninsula; so it was with the cities of the United States in the north—as Boston, New York, Philadelphia, Baltimore, and other places. Its invasion of the southern tropic at Rio, so recent and severe, together with its gradual decline in the north temperate zone, may be the precursors of its further northern declination, and southern advance; so that both Charleston, Mobile, New Orleans, and other southern towns and districts have now, at least, the same probabilities in favour

of approaching exemption, that many other cities further north had, more than half a century ago, before yellow fever appeared on the banks of the Mississippi. New Orleans is now, and has long been, near the northern border of the yellow fever zone. If yellow fever has, as may be the case, reached its culminating point in this city, its history elsewhere in the temperate zone indicates a progressive decline."

We close our notice of the work before us, with the following quotation from the remarks of Dr. Dowler in reference to the "*ens epidemicum*." We entirely agree with him that "it is better to acknowledge ignorance than to advocate an error. It is better to keep a question of this sort open, than dogmatically to close it against investigation. In the former case, the truth may be discovered; in the latter, never. To know ignorance is preferable to ignorance of ignorance."

"It is most certainly the duty of every writer on yellow fever," says Dr. Dowler, "to explain the cause of it if he can, but it is equally his duty not to sin against the decalogue of logic, any more than against the decalogue of Moses. Fortunately, the *conditions*, if not the *causes*, of yellow fever are, to a considerable extent known: for example, it is known to be connected, no matter how, with the warm season of the year, with unacclimated constitutions, with aggregations of people in towns and villages, etc. It rarely attacks rural populations, unless they crowd together so as to become virtually towns.

"A correct appreciation of these conditions is next in importance to the discovery of the cause of yellow fever—probably the former may prove, after all, to be more important; for the discovery of the cause by no means warrants the conclusion that it is necessarily a removable or a remediable one."

D. F. C.

ART. XXI.—*Essay on the Mechanism and Management of Parturition in the Shoulder Presentation.* By W. H. BOLING, M. D., of Montgomery, Alabama. Charleston, 1853. 8vo. pp. 91.

This is a most able and instructive essay on a subject of deep interest to the practitioner of obstetrics. On every point connected with that subject the author has presented the facts and observations recorded by the leading authorities, with their views and instructions, and has carefully compared these with the results of his own experience and reflections.

The description of the cases included under the general term of shoulder presentations; the examination of the probable cause to which these malpresentations are to be attributed; the account of the symptoms which should lead us to infer their occurrence, whether constitutional or tangible; the explanation of the mode of determining the position in which the shoulder, whether the right or left, presents; the remarks on the mortality attendant upon this variety of malposition; on its spontaneous termination, by version or evolution; on its complication from a descent of the arm, and the exposition of its proper management under the several circumstances in which the obstetrician may be called upon to act, as presented by Dr. Boling in the essay before us, are all marked by that sound sense and judgment which were to be anticipated from a well-informed, experienced, and observing practitioner.

From a careful study of the essay of Dr. Boling, clear views cannot fail to be acquired of the nature and management of a condition of parturition, which, when it occurs, is always perplexing to the inexperienced obstetrician, and even to the most skilful a source of no little solicitude.

Dr. Boling believes that spontaneous delivery, in cases of shoulder presentation, is possible more frequently than is generally supposed. Even in a majority of instances occurring among women in the South, including negroes and whites, he supposes the child may ultimately be expelled by the natural powers; often, he adds, it is true, at the expense of much constitutional suffering to the

mother, perhaps subsequent death, and, with a rare exceptional possibility, the death of the child. He does not, however, in consequence of this opinion, propose any alteration of the doctrines of practice; for these, he remarks, are proper as they now stand, even under this view of the question. "But it would be a comfortable consideration to the practitioner, when he finds the operation of version improper or impossible, because he may have been called too late—as is too often the case where females attend to the ordinary obstetrical practice—or from any other cause, that he has a reasonable ground to believe that his case is not of so grave a character altogether as has been supposed."

However much comfort it may afford the practitioner, under the circumstances just noticed, to know the spontaneous delivery is possible, and often does occur in cases of shoulder presentation, still, even in the cases referred to, it would not be proper to endanger the mother's life by putting off too long a resort to evisceration and withdrawal by artificial means of the foetus, in hopes of the occurrence of a spontaneous termination of the labour. In the early stage of a case of shoulder presentation, the possibility of such a termination should in no degree delay or influence the action of the physician; but, as Dr. Boling very correctly teaches: "In all cases in which the soft parts are well relaxed, and the os uteri fully dilated or dilatable, and the labour has not advanced so far, or the membranes been ruptured so long, and the uterus so forcibly contracted upon its contents, as to render the operation impracticable, without the exertion of a considerable degree of force, we should at once proceed to deliver by version. Where the membranes are ruptured, immediate action is the more imperatively called for, to avoid the increased difficulty to the operation which would be occasioned by the complete escape of the liquor amnii, and the rigid contraction of the uterus upon its contents."

The author's description of the mechanism of the process of spontaneous evolution in cases of shoulder presentation differs from that laid down by the leading writers on obstetrics; very materially, indeed, from that given by some, while from that presented by others its difference is less notable.

It is deserving of a careful examination; being, apparently, more nearly correct and exact than the descriptions usually given in the books. Were it not for its length, we should have been disposed to lay it before our readers.

Dr. Boling's directions for the management of cases of shoulder presentation are at once clear, precise, and judicious. We have not detected any important point in which they differ from those given by our most authoritative obstetricians, and usually followed out in practice. The views of the leading teachers of midwifery, in relation to the proper conducting of cases of parturition with shoulder presentation, are, in fact, adduced by the author in illustration or support of his own.

We are not informed whether the essay before us has been published for general circulation, or simply printed for distribution among the immediate friends of the author. It is one, we are convinced, that is well adapted for the instruction of the student, and to serve as a useful guide to the young practitioner, when the "troublous task" of attending upon a case of parturition with presentation of the shoulder of the foetus shall fall to his lot. D. F. C.

ART. XXII.—*General Therapeutics and Materia Medica; adapted for a Medical Text-Book.* By ROBLEY DUNGLISON, M. D., Professor of Institutes of Medicine, &c. in Jefferson Medical College, in Philadelphia, &c. &c. With one hundred and eighty-seven illustrations. Fifth edition, revised and improved. Philadelphia: Blanchard & Lea, 1853. 2 vols. 8vo. pp. 556, 523.

WHEN the demand for any work is such, as in the one before us, to exhaust four editions, and to warrant the issuing of a fifth, we have tolerably conclusive evidence that it is one adapted to supply the wants of that class of readers for which it has been expressly prepared.

The treatise of Dr. Dunglison constitutes, unquestionably, a most excellent text-book for the use of students in the departments of medical science of which it treats. It presents a very faithful and able digest of the leading results of modern observation and reflection on the important questions of the action, mode of operation, and therapeutic effects of the principal articles of the *materia medica*; with a brief sketch of the natural and commercial history of the drugs in common use. Nor will the treatise be found unworthy of the notice of the practitioner as a ready and trustworthy book of reference, when the time and opportunity for consulting many and more copious works is wanting.

With his usual industry and accuracy, Dr. Dunglison, in the preparation of the present edition, has, besides thoroughly revising that portion of the treatise which relates to pharmacology, paid due attention to the facts and trustworthy observations, in reference to the several subjects embraced within its scope, that have been recorded, either at home or abroad, since the appearance of the last edition, so as to render it a faithful epitome of the existing condition of general therapeutics and *materia medica*.

D. F. C.

ART. XXIII.—*Institutions for the Insane, in Prussia, Austria, and Germany.* By PLINY EARLE, M. D., one of the Visiting Physicians to the Lunatic Asylum of the City of New York, &c. Utica, 1853. 8vo. pp. 229.

In the volume before us, Dr. Earle gives, in an interesting form, the record of a very extensive personal examination of many of the numerous institutions for the insane in Prussia, Austria, and Germany.

Familiar as we have become with all the prominent hospitals for the treatment of mental disease in Great Britain and France, only a limited number beyond these countries have been seen by any of our professional men, who have visited Europe for the purpose of profiting by the improvements which, within the last twenty or thirty years, have been introduced into most of these institutions. "A general impression appeared to prevail, indicated, it is true, more by negative than positive signs, that, aside from the countries mentioned, the nations of Europe had made but little progress in this department of the profession, and hence could furnish us nothing commensurate with the labour and expense necessary to its acquisition," and yet the literature of the Germans on this branch of medicine is able and voluminous. Much of it is, perhaps, unprofitable, as being devoted to a zealous advocacy of specious theories, but still containing a great amount of valuable information, and exhibiting very strikingly the talent and industry which, in that region, are devoted to the study of mental diseases.

Various institutions for the care of the insane, too, are to be found, throughout these countries, which have a deservedly high character for their liberal arrangements, and the admirable manner in which their whole service is performed.

During the summer of 1849, Dr. Earle visited many of these institutions, under peculiarly favourable circumstances for obtaining a knowledge of their actual condition. Long devoted to the study of diseases of the mind, and for several years engaged in the superintendence of a large American Hospital, he went abroad with a degree of practical knowledge of the subject, and a familiarity with the wants of such establishments, which rendered him well qualified to judge of the excellences, as well as the defects, which are to be found in abundance in the different German institutions.

The first chapter of the work before us is devoted to a brief history of insanity in Germany, of the German periodical and other literature on the subject, and an interesting notice of the prominent men who have been distinguished in this specialty—which, although receiving only a brief notice at our hands, will well repay an attentive perusal.

The following estimate of German hospitals, as compared with our own, is interesting:—

"A large proportion of the buildings occupied as hospitals or asylums for the insane in Germany, were formerly monastic establishments. Their architectural arrangements are not only of a former age, but were adapted to a different purpose, and hence are less convenient than most of our institutions. Still, their conversion into asylums for the insane has already been productive of at least one advantage. It has accustomed the officers of these institutions to large rooms, so that, in the construction of new buildings, the principle of providing accommodations for the greatest number of patients in the least possible space does not enter into consideration. It is really a delightful treat to see the large, well-lighted, and airy corridors of Eichburg and the asylum at Halle. The number of cubic feet of inclosed space in the principal German institutions is probably not less than twice as great, in proportion to the number of patients, as those in the United States. Such asylums as have been recently erected, and specially designed for the purpose—as, for example, those of Halle, Illenau, and Eichburg—are great improvements upon the others, and yet, in point of convenience, are unequal to some of ours. In their asylums generally, the apartments for patients have not that finished aspect of comfort which is found in many of the American institutions. This is particularly owing to the universal absence of carpets. Yet, relatively to the prevailing customs of the people, they are probably as well furnished as ours. In the conveniences of the kitchen, the laundry, and the means of distributing food throughout the house, they are inferior. Cooking is rarely done by steam. I saw no wringing-press, and no dumb-waiter. Mechanical appliances for the purpose of bodily restraint, are probably somewhat more extensively used than upon this side of the Atlantic."

It appears that, during this visit, Dr. Earle found several establishments in which he was shown through only a portion of the wards, and occasionally he had no opportunity of seeing those for violent patients. We trust few, if any, American superintendents can be found but that will cordially agree with Dr. Earle, that when a professional brother, engaged in the same specialty, visits an establishment for the purpose of becoming familiar with its arrangements, it is a duty, and ought to be a pleasure, to conduct him through every ward, and to throw open every part for his inspection. The credit should be given such a visitor that he comes "to learn the advantages of the institution, not to seek for demerits or matters for cavil."

In regard to moral treatment, Dr. E. considers the German asylums fully equal to those of the United States. "In the most important point of all—if reference be had to curative treatment, or the quietude, order, and hygienic condition of the patients—that of manual employment for the inmates, they are superior. The radical source of this superiority lies, undoubtedly, not in the more ardent wishes, or the greater efforts, of their superintendents for the welfare of their patients—for, in these respects, none can excel the officers of the American asylums—but in the education of the people, and the nature of the political governments under which they live. Obedience to authority becomes, by education, more a matter of principle or of habit. Furthermore, the asylums are more independent than ours, and the retention and management of patients more optional with the officers."

Of the forty-nine public, and eight private, establishments of which mention is made, and a more or less extended description given, in the volume before us, seventeen were visited by Dr. E. They embraced those of Sieberg, Andernach, Eberbach, Frankfort, Dusseldorf, Hildesheim, Halle, Berlin, Sonnenstein, Leubus, Brieg, Vienna, Hall, Giesing, Winnenthal, Illenau, and Stephansfield. Nine of these are among the thirteen which Dr. Julius calls the best in Germany.

Want of space prevents our giving a more extended notice of the author's visit, or referring to the many interesting facts and judicious criticisms scattered through the volume. We can heartily commend the work to the attention of all who take an interest in the insane, or are disposed to become familiar with the views of prominent German physicians on this important subject, and

to learn from a competent observer the actual condition of the various institutions which, in that wide and populous region, are specially devoted to the treatment of the various forms of mental disease.

T. S. K.

ART. XXIV.—*Dental Chemistry and Metallurgy: Chemistry and Metallurgy, as applied to the Study and Practice of Dental Surgery.* By A. SNOWDEN PIGGOT, M.D. Philadelphia: Lindsay & Blakiston, 1854. Pp. 516.

THIS new work is designed to fill a vacancy in the dental library, and meet a pressing want of the profession. Its author gives ample proof of the sufficiency of his resources, and exhibits great skill in their employment for the special use intended. For practical purposes, it has the character of a manual and operative directory; and for instruction in the scientific relations of his theme, it could scarcely be more judiciously and profitably executed. It is neither incumbered nor deficient in chemical science. It at once guides the operative dentist in the details of his every-day work, and teaches the student the principles directly involved in the philosophy of his profession. The liberal learning and the practical art of dentistry are alike provided for, with a perspicuity, compass, and exactitude that are worthy of high commendation. In the first book, "The Ultimate Chemical Elements of the Human Body" are well presented for the general purposes of the work. In the second, we have "The Chemistry of Digestion." These departments, which occupy one hundred and fifty pages of the treatise, are clearly necessary to the dentist who would understand the functional agencies which affect the organs whose diseases he must understand and treat. The general principles of organic chemistry must necessarily form the basis of a successful investigation of any of its specialties, and it is quite impossible to understand the fluids of the mouth, and the processes which take place in it, without some knowledge of those ulterior stages of digestion with which its functions are directly connected. These introductory divisions of the work are, therefore, of primary importance in the discussion of the subjects which are the specific aim of the work. The third book is occupied with "The Chemistry of the Mouth"—the teeth, saliva, the morbid changes of saliva, in all their forms; mucous and salivary calculi. The fourth book is upon "The Chemistry and Metallurgy of the Metals and Earths used by the Dentist;" the first chapter—on the different methods of applying heat, furnaces, and auxiliary apparatus—illustrated by a large number of well-executed engravings. The remaining ten chapters are upon as many metals, their alloys, compounds, and behaviour in the processes to which they must be subjected.

The chapters on gold and silver, and especially the tables of the coinage of different nations and dates, showing their weight, fineness, and value, are of great importance every way, but particularly in enabling the mechanical dentist to avoid those crystalline, unmalable alloys that prove so troublesome in practice, as well as ascertain the exact composition of the plate, are matters of very great moment. To all this are added seven or eight chapters on the materials used in making incorruptible teeth, the colouring matters, and the preparation of the materials.

The work, it will be seen by this brief synopsis, is a full one, well and methodically arranged. It appears to us to be as well treated as it is planned, and we are satisfied it will contribute handsomely to that commendable effort which the profession is now making to liberalize and elevate its study and practice.

The publishers have got out the book in their best style.

E. T.

QUARTERLY SUMMARY
OF THE
IMPROVEMENTS AND DISCOVERIES
IN THE
MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *On the Human Retina.*—In a memoir read before the Academy of Sciences, Sept. 26, 1854, by KÖLLIKER and H. MULLER, they announce some important investigations relative to the structure, the connection, and the probable function of the different parts of the retina. They describe the following layers: 1. Rods and cones; 2. Nucleiform bodies; 3. Gray substance; 4. Expansion of the optic nerve; 5. Limiting membrane. Passing over the last, it has been discovered by Kölliker that the expansion of the optic nerve is interrupted at the macula lutea, which exhibits no trace of nerve-fibres, while the nerve-cells form there a very thick layer of nine to twelve superimposed rows. In other parts, the termination of the nerve-fibres of the retina directly in the nerve-cells has been fully confirmed, the fibres becoming continuous with the processes, one to six in number, which these cells present, resembling entirely the prolongations of the ganglionic corpuscles of the brain and nervous ganglia. The nerve-fibres may, therefore, be said to originate from the nerve-cells. The cones (hitherto imperfectly described), are thicker and shorter than the rods, on the inner part of which they are placed; they present externally a prolongation resembling a short rod; they are pretty regularly set, and at the macula lutea, where the rods are entirely wanting, the cones are abundant, and form a continuous layer. From the internal part of each cone and rod there proceeds a fibre which passes through all the layers of the retina, and becomes lost on the inner surface of the limiting membrane. These fibres, first observed by H. Müller, in animals, are in relation with the nucleiform bodies; they have been named "fibres radiæ," and are probably of great importance in regard to the functions of the retina.

From their observations, the authors conclude that the nerve-fibres of the retina do not serve for the objective perception of light, because they are deficient at the macula lutea, where vision is acute, and because the optic nerve itself is insensible of luminous impressions. It is improbable that the nerve-cells, or nucleiform bodies, which exist in several superimposed rows, can give rise to any very exact visual impression. The cones and rods remain, therefore, as the most likely parts to receive the impression of light, of which the Mosaic-like disposition would render the sensation as definite and exact as possible. The authors, however, have not completely demonstrated the connection by which such impressions could be transmitted to the fibres of the optic nerve; but they suppose that this communication takes place—1st, by means of the radiary fibres, which connect the cones with the nucleiform bodies; 2d, by means of the processes of the nucleiform bodies, which, becoming continuous with the external processes of the nerve-cells, would complete the commun-

nication from the nucleiform bodies to the nerve-fibres of the retina. However this may be, the authors conclude that the nerve-cells are the organs for the direct sensation of light, either immediately or by the intervention of the cones, rods, and radiary fibres; that these cells form a true ganglion or nervous centre, and that the optic nerve serves merely to transmit the sensations from this centre to the organ of intelligence and consciousness.—*Monthly Journ. Med. Sci.* Dec. 1852.

2. *On the Insensible Spot of the Retina in the Human Eye.*—Dr. FICK and P. DU BOIS-REYMOND differ from VOLKMANN¹ in the conception of the influence exercised by the insensible spot of the retina on the perception of the image by the mind. They adopt the view that the impressions of light thrown on the insensible spot are not conveyed to the sensorium, while the impressions thrown on the other parts of the retina are perceived by the sensorium. It is well known that VOLKMANN and other psychologists (WATZ), are of opinion that the soul forms the idea of the dimension of objects by composing the impressions from the various parts of the retina mosaic-like, and that the piece of the object from which the rays are thrown on the insensible spot (which piece may be called "the unseen space"), falls out from the conception. The image, therefore, would be constructed smaller than the real object. VOLKMANN draws from this the inference that a line, the image of which is passing through the unseen spot, must be perceived as much shorter as is just proportionate to that piece of the image which is thrown on the unseen space. In opposition to this theory, the authors maintain the view that the soul possesses in itself a notion of space and dimension, and that it fills up the unseen piece of the object by a kind of *deception* according to certain laws. As one of the principal laws, may be regarded that the quality of the perceptions which the soul fancies to derive from the unseen space depends on the quality of those coming from the immediate neighbourhood. We propose to quote some experiments which the authors adduce in corroboration of their theory. If a black stripe be placed on a white surface in such a manner as to make its image pass through the blind spot and exceed it as well above as below, the stripe is seen *unshortened*, exactly as if its image had been thrown on another part of the retina sensible throughout the whole of its dimension (provided the stripe be not too narrow). If a part of the black stripe is cut out from its central portion and the image of the empty (white) middle space is thrown exactly on the blind spot of the retina, while the upper and lower piece remain as in the former experiment (*i. e.* throwing their image just below and above the blind spot)—the black stripe is seen or fancied *unshortened and entire*, as if the central piece were not cut out. If the image of the stripe is thrown on the retina in such a manner that one *end* of it falls on the blind spot, the stripe is perceived by the soul *shorter* than it is in reality, and this shortening is proportionate to that piece of the image which falls on the blind spot, the latter being filled up by the soul with the white colour of the surrounding ground. The authors do not proffer a new opinion about the cause of the insensibility of the blind spot, but on account of the extension and form of the unseen space they are not inclined to adopt the view of its being caused by the arteria centralis retinæ.—*Brit. and For. Medico-Chirurg. Rev.* Jan. 1854, from Müller's *Archiv.* Heft 3, p. 396.

3. *On certain Functions of the Spinal Cord.*—T. LOCKHART CLARK draws the following conclusions from investigations which he has made on the ox, calf, cat, rat, mouse, and frog: 1. That the posterior roots of the spinal nerves consist of three kinds; two of them entering the posterior gray substance at right angles, the third kind, with different degrees of obliquity, tending upwards, a small proportion only of the latter taking a longitudinal course, and becoming lost in the posterior white columns. 2. That in no instance were any fibres of the anterior roots seen to ascend with the anterior white columns, before they had entered the gray substance. 3. That besides the transverse bundles forming the anterior roots, a continuous system of exceedingly fine transverse fibres

¹ Wagner's Handwoerterbuch. Art. "Sehen."

issue from the anterior gray substance, and become lost as they proceed towards the surface of the cord. 4. That from the preceding facts, it may be inferred that nearly all, if not the whole of the fibres composing the roots of the spinal nerves, proceed at once to the gray substance of the cord; and that, if any of them ascend directly to the brain, it must be *those only* of the posterior roots which run longitudinally in the posterior white columns. 5. That the communication between the sensorium and the spinal nerves is not established by the posterior white columns, but by the antero-lateral columns, especially the lateral. 6. That many of the fibres belonging respectively to the anterior and posterior roots in different regions of the cord, terminate there by forming with each other a series of loops of various sizes and lengths; and that it is not improbable that some of them may reach even as far as the brain. It is not perfectly denied by the author that a portion of the roots may be connected with the vesicles of the cords, but he considers the evidence of any such connection as very unsatisfactory. 7. The fine longitudinal fibres described by Stilling have not been found by the author. He is inclined to believe that the gray substance of the cord does not transmit impressions to and from the brain. 8. That there is great correspondence in the fibrous arrangement between the gray substance of the cord and the chiasma of the optic nerves. The author further remarks that the circumstance of the nerve-roots diverging upwards in the cord and intricately intermingling with each other, may explain why impressions made at one particular spot are communicated to distant parts of the cord, so as to excite simultaneous and sympathetic actions in classes of muscles which otherwise would appear unconnected.—*Proceedings of the Royal Society, 1853, p. 297.*

4. *Excitability of Cilia.* By M. VIRCHOW.—All known contractile substances may be excited to action by means of stimulation with mechanical, physical, and chemical agents. Valentin and Purkinje, however, discovered in cilia an exception to this rule, for they found that the only way in which their motions, when becoming weak, could be roused to renewed activity, was by means of *mechanical irritation*. The truth of this observation was doubted by Professor Sharpey; and Virchow has lately been experimenting on cilia to ascertain its accuracy. He has discovered, by chance, that ciliary motion is capable of being excited by two chemical agents. On adding a solution of caustic potash to a portion of epithelium from the human trachea, in which the ciliary action—originally weak—had nearly ceased, he found that the motions of the cilia became very animated, and continued so until their tissue was destroyed by chemical corrosion. He has frequently repeated this experiment, and always with the same result. Portions of epithelium which he immersed in water till the motions of the cilia had ceased, and their structure had begun to be impaired, recovered, by the application of the potash, all their normal phenomena. The alkaline solution needs to be very slowly and cautiously applied. When this is done, at first, a few cilia only begin to move, with an irregular jerking action; by and by, others follow, moving indeterminately and confusedly; finally, all are in full action, with gradually increasing force, moving harmoniously together in one direction, with the quick rhythmic, lashing action peculiar to these bodies.

If, on the other hand, the alkali be applied too suddenly, or too strong, it will merely cause a brief, convulsive movement of the cilia, followed immediately by the destruction of their substance.

Virchow considers these effects to be induced by the chemical action, and not by the corrosive power of the alkali.

Caustic soda, when applied to cilia, acts precisely as the potash solution. Ammonia, on the other hand, occasions their immediate chemical decomposition. Virchow has found no other substance which acts in the same manner as these two bodies; and, considering the vast number of chemical substances tried in vain by Purkinje and Valentin, he entertains little hope of discovering any.

He considers that the excitability of cilia—demonstrated by his experiments

—proves their substance to be analogous to the contractile structure of muscle.—*Monthly Journ. Med. Sci.* Jan. 1854, from *Virchow's Archiv für Pathol. Anat. und Physiol.* Bd. vi. heft i.

5. *Discovery of a Substance presenting the Chemical Reactions of Vegetable Cellulose in the Human Nervous Centres.* By M. VIRCHOW.—In the human brain, Purkinje first described peculiar corpuscles formed of concentric layers, and analogous in structure to starch granules. Their origin and use were unknown. By microchemical examination, M. Virchow has made the curious discovery, that these “corpuscula amylacea” present the reactions of vegetable cellulose. When they are treated with an aqueous solution of iodine, a light bluish tint is produced, which contrasts strongly with the yellow colour of the surrounding parts; and, when hydrated sulphuric acid is added, the corpuscles present the bright violet colour which forms the specific character of vegetable cellulose. The constancy of this reaction has been confirmed by repeated investigations. The corpuscles of cellulose, however, or true corpuscula amylacea, belong to the ependyma, and are found only in the superficial layers of the cerebral ventricles, in the spinal marrow, particularly the central gray substance, corresponding to the ependyma of the obliterated central canal, and in the nerves of the senses, as in the gray substance of the olfactory nerve. All other concentric corpuscles, from the pineal gland, choroid plexuses, granulations of pacchioni, or the (calcareous) plates of the spinal arachnoid, show no vegetable reaction. The discovery of cellulose in this situation has great interest in connection with the production of sugar in the body from lesion of the nervous centres, as shown in M. Bernard's experiments. M. Virchow, however, has not found cellulose in the rabbits.—*Acad. des Sciences*, Sept. 26.

Since the discovery of this substance in the human brain and spinal cord, M. Virchow had sought for it in most of the healthy and morbid tissues of the human body without success. He has, however, at length recognized it in that peculiar affection of the human spleen which consists in a kind of colloid degeneration of the Malpighian bodies, and is usually designated waxy spleen. (Wachsmiltz.) In this lesion, the Malpighian bodies are transformed from the periphery to the centre into a homogeneous mass of a grayish or yellowish colour, presenting the form of grains like those of boiled sago. These grains are composed of microscopic corpuscles, somewhat irregular, but quite homogeneous, which may be considered to result from the transformation of the cell contents of the splenic follicles. Treated by chemical reagents, these corpuscles are rendered pale by acetic acid, and, on the addition of a little ferrocyanate of potassa to the acidulated preparation, a granular precipitate is formed in the interstices of the corpuscles. Hot nitric acid produces a yellow colour, which becomes brownish on the addition of caustic ammonia from the formation of xanthoproteic acid. But in particular by the action of iodine and sulphuric acid, the bright violaceous colour of cellulose is struck with surprising promptitude, showing the similarity in composition of these waxy corpuscles with the corpora amylacea of the nervous centres. The exactness of the reaction was verified on specimens preserved in spirits. M. Virchow adds that this degeneration of the spleen is principally found in states of cachexia, and mostly in patients who have been the subjects of protracted ulcerous affections.

—*Monthly Journ. Med. Sci.* Jan. 1854.

6. *Colour of the Hair.* By Dr. ALLEN DALZELL.—The colour of the hair, which, according to Griffith, was long attributed to pigment accumulated in the cells of the medulla, depends upon one or more of three causes. First, on pigment granules; second, on diffused colouring matter impregnating the entire tissue; and third, on the presence of air spaces within the fibres of the shaft. To these might be added the nuclei of the cells themselves, which, however, where pigment granules are present, are so surrounded by them as to be scarcely, if at all, discernible. But where their isolation has been effected by boiling with moderately dilute caustic potash, they are shown as dark bodies of an elongated form.

The colour of the hair corresponds in intensity to that of the iris; as, for

example, auburn with blue, and black with the darker tints. Nor are these relations at all confined to the human species, although especially remarkable in the Albino, whose choroid is destitute of pigment, and hair either very pale or entirely white.

Many observers have described the granular pigment which forms the first class of colouring matter, as if it was situated in interspaces of the fibres. I have, however, assured myself of the fact, that pigment is never lodged exteriorly in the cells, but always in some part of the interior, as may be plainly seen in the hairs of some *cervi*, where the entire cells are dry and empty, except of traces of colouring matter which adhere to their walls. Changes, during the growth of hair, often take place at regular intervals in the colour and amount of these deposits. This is seen in the hairs of many of the quadrupeds and carnivora, to which classes it is, however, by no means confined.

In many hairs, the colour is uniform or diffused. Most animals have hairs of this kind; good examples may, however, be found in the short hairs from the face of the hare, in the tapir, and yellow bear.

Air spaces in the shaft.—These cavities, from containing air, refract light beyond the field of the microscope, and thus, like the cells of the axis, give the idea of colour; these are best seen in white hairs. Some authors have described them as fat-granules. This is inaccurate, for, on boiling with ether or turpentine, they become filled with the fluid; and even when treated in menstruum, which does not dissolve fat, they lose their refractive properties, and retain only their general outline. They are empty cavities situated in the cells of the shaft, produced, as Kölliker supposes, by the absorption of its granular pigment; for they are not found in any hair originally colourless, but only in such as have become so from some cause affecting their vitality. I examined a hair with one extremity entirely white, the other unaltered—the former part I found filled with air cells, the latter, pigment cells.—*Edinburgh Philos. Journ.*

7. *Human Skeleton in which there were Six Cervical Vertebrae, Twelve Dorsal, and Six Lumbar.*—HOLMES COOTE, Esq., Demonstrator of Anatomy at St. Bartholomew's Hospital, describes (*Med. Times and Gaz.* Jan. 21, 1854) the skeleton of a Chinese who died in the Hospital at Sidney, which had six cervical vertebrae, twelve dorsal, and six lumbar. The skeleton was prepared by Mr. Milford, now a student at St. Bartholomew's Hospital. He guarantees the integrity of the specimen, and Mr. C. states that any skepticism upon the point will disappear upon examining it, especially if one reflects how difficult it is to replace, under most favourable circumstances, a lost bone. Of the six cervical vertebrae, only the second, third, and fourth have bifid spines, the spine of the axis being very strongly developed. There is no vertebra prominent, the fifth and sixth and the first dorsal spines being on the same plane.

The dorsal vertebrae present no features of special interest, the first, or that usually termed the seventh cervical, having a strong diapophysis (transverse process), at the extremity of which is a deep depression for the head of the rib.

The six lumbar vertebrae are well-made bones; the articulation between the fifth and the sixth is looser than in the white races (the same looseness is noticed in the African skeleton). The lower articulating processes of the sixth lumbar vertebra look forwards, as in the dorsal region.

"I know not," Mr. C. remarks, "whether this peculiarity is common among the Chinese. It would serve to make the neck short, and to give length and mobility to the loins. Many of these men appear, during life, remarkable for the shortness of the neck, and are distinguished for great freedom of movement in the trunk, as exhibited in climbing, or running up the rigging of a ship. The ribs in the specimen here mentioned are normal."

Mr. Coote says that he knows of no other instance in which the number of dorsal or movable ribs is twelve, forming a thorax placed one vertebra higher up than in the normal skeleton.

MATERIA MEDICA AND PHARMACY.

8. *Saccharine Carbonate of Iron and Manganese.*—Dr. S. T. SPEER has published (*Med. Times and Gaz.* Dec. 10, 1853) the following formula for the preparation of a saccharine carbonate of iron and manganese, which he extols as superior to every other chalybeate, and as having a complete freedom from the inky flavour of other preparations of iron:—

“Take of finely powdered sulphate of iron $\frac{3}{4}$ ijij, $\frac{3}{4}$ j; carbonate of soda $\frac{3}{4}$ v; sulphate of manganese $\frac{3}{4}$ j, $\frac{3}{4}$ j; white sugar $\frac{3}{4}$ iiss. Dissolve each of the three first-mentioned ingredients in a pint and a half of water, add the solutions, and mix them well; collect the precipitate on a cloth, filter, and immediately wash it with cold water; squeeze out as much of the water as possible, and, without delay, triturate the pulp with the sugar, previously reduced to a fine powder. Dry it at a temperature of about 120° Fahr.

“The compound thus prepared, is a powder of a reddish-brown colour, and devoid of all taste, save that imparted by the sugar, with which the salts of the two metals are conjoined. The dose is 5 grs. gradually increased up to $\frac{3}{4}$ j, three times a day; it should be given with the meals, or at least immediately after.”

9. *Opium and its Adulterations.*—*The Lancet* (Nos. for Jan. and Feb. 1854) contains an account of the microscopical and chemical examination of a number of specimens of opium.

Of twenty-three samples of gum opium as imported, it appears that no less than nineteen of them were adulterated, four only being genuine, the prevailing adulterations consisting of POPPY CAPSULE and WHEAT FLOUR, many of the samples being adulterated to a very large extent; but in two cases SAND, in one SUGAR, and in another GUM, were discovered.

Of thirty-two samples of powdered opium, thirty-one were adulterated, and one only genuine; the principal adulterations, as in the previous case, being with POPPY CAPSULE and WHEAT FLOUR.

That four of the samples were further adulterated by the addition of POWDERED WOOD, introduced, no doubt, in the process of grinding. Out, therefore, of fifty-five samples of gum and powdered opium, the results of the microscopical and chemical analyses of which have been recorded, five only were genuine.

According to the analyses of the gum opiums as imported, the amount of alkaloids was found to vary from 2.7 to 14.0 per cent.—that is, in the proportion of nearly one to five; it is probable, however, that the Egyptian opium, which furnished only 2.7 per cent. of alkaloids, had been deprived of its morphia, and it was also adulterated with an enormous quantity of some gummy substance. The two gum opiums which furnished the next lowest amounts were—another sample of Egyptian opium, which contained only 3.7 per cent., and a sample of Turkey opium, which yielded but 4.2 per cent. of alkaloids.

From an examination of the analyses of the powdered opiums, it appears:—

That the amount of alkaloids varied from 2.3 up to 12.2 per cent., or in the proportion of nearly one to six—that is, the samples differed in strength in that ratio. The lowest amounts of alkaloids furnished by the powdered opiums were 2.3 and 3.2 per cent.; these were, in all probability, exhausted opiums, which had been previously employed in the preparation of tincture.

The author states it as his belief, “that it is not an unfrequent practice with druggists to employ the insoluble residue, when dried and pulverized, left from the preparation of the tincture of opium, in the adulteration of powdered opium. We have also known it to be used for making the unguentum gallæ compositum.

“From all this, then, it follows, partly in consequence of adulteration, that crude opium varies to a great extent in strength and activity, so much so that no certain reliance can be placed on the effects produced by this remedy, administered according to any fixed or uniform scale of doses.

"It further follows that all those preparations made from opium, or into the composition of which opium enters, are of equally uncertain strength and power—as, *tinctura opii*, *tinct. camphoræ composita*, *vinum opii*, *pulvis cretæ comp. cum opio*, *pulv. ipecacuanhae comp.*, *pulv. kino comp.*, *pilulae saponis comp.*, *confectio opii*, *extractum opii*, *enema opii*, *linimentum opii*, and *emplastrum opii*, of the London pharmacopœia; *tinctura opii ammoniata*, *acetum opii*, *pilulae opii*, *pil. calomelanos et opii*, *pil. plumbi opiatæ*, *electuarium opii*, and *trochisci opii*, of the Edinburgh and Dublin pharmacopœias.

"But, further than this, gum opium is possessed of very different degrees of strength, as is clearly shown by the following results, obtained by different analysts and experimentalists:—

"Chevallier found in six samples of choice Smyrna opium the following proportions of water, viz: 33.5, 35.0, 40.5, 42.25, 52.5, and 53.0 per cent.

"O'Shaughnessy found from 25 to 21 per cent. of water in Indian opium (Behar agency), and 13 per cent. in Patna opium. Dr. Eatwell, the opium examiner in the Benares district, finds that the proportion of water varies from 30 to 24.5 per cent. in the opium of that district.

"With respect to the proportion of morphia, Chevallier says that Smyrna opium contains from 5.6 to 6.4 per cent. of that alkaloid; Constantinople, from 2.8 to 3.2; and Egyptian opium, from 2.0 to 2.4 per cent.

"This subject was discussed at the Pharmaceutical Society of Paris on the 2d of April, 1850, and Mialhe stated that the proportion of morphia in commercial opium varied from 1 to 10 per cent., and this was confirmed by Soubeiran. Guibourt said he obtained from 15 to 17 per cent. in Smyrna opium, as also did MM. Caventou and Aubergier. Dublanc affirmed that it contains at most 14 per cent., but sometimes it is as low as 1, 2, or 3 per cent. Guillemette rarely obtained more than 14, while good specimens yielded from 10 to 12 per cent. De Vry analyzed 21 samples of commercial opium, and found the proportions of morphia to vary from mere traces to 9.2 per cent. (but his process was not a good one). Reich got from 10 to 12 per cent.; and O'Shaughnessy obtained from the opium of the Behar agency from 1.75 to 3.5 per cent. of morphia, and 0.75 to 3.5 of narcotina; in that from Hazareebaugh, 4.5 of morphia, and 4.0 per cent. of narcotina; and in Patna garden opium he extracted 10.5 per cent. of morphia, and 6.0 per cent. of narcotina. Dr. Eatwell found in the opium of the Benares district the following proportions of morphia and narcotina in the years 1845 to 1848:—

	Morphia.	Narcotina.
1845	2.48
1846	2.38
1847	2.20
1848	3.21
		4.06

"These last facts show that, even if we could succeed in obtaining in all cases gum opium of undoubted purity, yet we could not rely upon its producing uniform effects. This consideration shows the necessity of employing in medicine some preparation made from this drug, of ascertained strength; this, to some extent, we possess in the salts of morphia; and, no doubt, it is far better to prescribe these, in the majority of cases, in preference to crude opium.

"But it is probable that a preparation might be obtained formed of more than one constituent of opium, and which would, therefore, more nearly resemble the complex and original drug. One method by which an approximation to uniformity of strength could be obtained in the tincture of opium, is by a previous analysis of the gum opium from which it is to be prepared, and a regulation of the dose according to the strength of that opium; or the alkaloids might be added where they were deficient, so as to insure as near an approach to uniformity as practicable.

"It should be observed that, of the previous samples of powdered opium, those which were found to contain the largest percentages of water had been kept in a tin case, and thus the moisture prevented from escaping; while most of the samples which contained the smaller percentages of water, had been exposed to the atmosphere, and so lost part of their water."

10. *Extract of Bullock's Blood.*—Dr. MAUTHNER, who introduced this remedy, writes to Dr. Behrend as follows: "I now give it to children in larger doses than formerly, to the extent of half an ounce in the day, dissolved in water. In many anaemic states, the favourable result is so striking that the parents, perceiving the improvement of their child, generally desire the continuance of the agent. In these larger doses, it is true, the drug colours the dejections of a brown hue, but it does not give rise to the least dyspeptic symptom. It has never caused emesis, and, if the child has shown some dislike to it at first, it takes it afterwards with great avidity. Children who were in the extreme stage of exhaustion, whose stomachs were so irritable that milk and beef-tea or broth were rejected by them, and cod-liver oil could not be in the least retained, bore the extract of ox-blood well, and throve admirably." Here, in Berlin [Mauthner is at Vienna], the extractum sanguinis bovini is given with very good effect to chlorotic and emaciated girls, and even to phthisical adults. A colleague has found it very efficacious in rachitis.—*Journ. fur Kinderkrankheiten.*

11. *Decoction of Olive Leaves in Intermittent Fever.*—Mr. MALTAS states (*Pharmaceutical Journal*) that he was in the island of Mytilene at a time when fever and ague of the worst description was raging in the island; in fact, it was so bad, that death ensued frequently after a week or ten days. The small quantity of quinia at the druggists' was soon exhausted, and he could procure none to administer to patients. Knowing that biberine and salicine were often used for fever and ague, he turned over in his mind all the bitters he could think which might prove effectual. Many were poisonous, and he rejected them; then thought of *olive leaves*, and after several trials, he commenced administering doses of a decoction of the leaves—say two handfuls boiled in a quart of water till evaporation had reduced it to a pint. This he gave in doses of a wineglassful every three or four hours. Obstinate cases of fever gave way before it, and for many years he has found it more effectual than quinia.

MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

12. *Curability of Tubercular Meningitis.* By H. HAHN.—This disease has been too generally regarded as an incurable malady. A child affected with tuberculous meningitis is a child nearly as much condemned in the sight of the parents as in that of physicians. Nevertheless, such an idea, as cheerless as it is false, is a great misfortune, for it depresses courage, paralyzes energy, and scarcely permits the evil to be combated with through the more efficacious measures. The defeat, too, seems to have nothing humiliating about it, since it is regarded as a necessity. The prejudice which attributes the character of incurability to tuberculous meningitis, only serves the purpose of shackling the progress of medical art. But we have sufficiently cleared up this question in the fourth chapter, and we have there shown that the disease is, in a very great number of cases, susceptible of cure.—*De la Méningite Tuberculeuse.*

13. *On Tuberculosis in Egypt.*—In 363 dissections at Cairo, by Prof. GRIESINGER, there was tubercle in 62 (17 per cent.), but as in 12 it was very trifling and obsolete, it should be said that there was recent tubercle in 50 (13.8 per cent.). (In Stuttgart and Prague the proportions are, according to Cless and Dittrich, whose observations are referred to for comparative data, 36—37 per cent. in both places.) It was less common in old persons; its greatest frequency was between the ages of 15 and 20; but in general terms it may be said to have been nearly the same between 7 and 40 years. Among the 363 dissections in the hospital were 333 Fellahs and ten Negroes; the proportion of tubercle was only 11.11 per cent. among the former, and no less than 50 per cent among the latter. Dr. Griesinger remarks that the disposition of Negroes

to tubercle, so common in cold climates, begins already in Egypt. With respect to the implication of particular organs—the lungs were unaffected in one case in which there was tuberculous meningitis; in all other cases they suffered. In 33 cases the disease was confined to the lungs and its appurtenances (pleura and bronchial glands); in 10 cases the lung disease was about equally advanced with disease of other organs; in 6 cases the disease was very trifling in the lungs, but was advanced elsewhere.

The amount of disease in the lung appeared less than in phthisical cases in Europe; the lower lobes alone were attacked in four cases, the extreme apices of the lungs appeared to be spared often, and the tubercle was found about the height of the second or third rib.

In 4 of these 50 tuberculous cases there was pericarditis (not apparently with tuberculous deposit at that point). The peritoneum was tuberculous in 14 cases (28 per cent., whereas in Cless's cases it was affected only in 13 per cent., and in Dittrich's in 7 per cent.). The small intestines were affected 23 times=46 per cent. (in Cless's cases 54 per cent.); the large intestines were affected in 6 cases=12 per cent. (in Cless's cases 24 per cent.). The intestines were thus altogether affected in 50 per cent., while Cless's numbers are 78 per cent., and Dittrich's 72. The mesenteric glands were affected in 22 cases=44 per cent. (in Cless's cases 25 per cent.); the liver was tuberculous in 9 cases=18 per cent. (in Cless's cases only 1 per cent.); the spleen was affected in 23 cases (46 per cent.), and between the ages of 7 and 30 this organ was affected in no less than 87 per cent.; in Europe, the frequency of spleen tubercle is much below this; the kidneys were affected 12 times (in 4 cases very greatly); this number is also much higher than in Europe; thus in Egypt in 24 per cent., in Cless's cases 4 per cent., in Louis's 2 per cent. In 3 cases there was tuberculous meningitis, in 2 cases tubercle in the brain. The following is the order in which the organs were attacked: lungs, bronchial glands, spleen, small intestines, peritoneum, pleura, kidneys, mesenteric glands, liver, large intestines, pia mater, brain.

Dr. Griesinger then remarks that tuberculosis generally, and phthisis pulmonalis in particular, are far less common in Egypt than in Mid-Europe; the causes of this are, perhaps, the mild climate, the mode of occupation, which is never hardly sedentary, and the infrequency of bronchitis and inflammatory affections of the lungs. The investigations show also the relative infrequency of tuberculosis in children; while, on the other hand, the extremely frequent implication of the mesenteric glands, peritoneum, liver, spleen, and kidneys, makes the tuberculosis of adults in Egypt approach, as far as organs are concerned, the tuberculosis of children in Mid-Europe.

The important question whether Egypt (Cairo) is a good residence for tuberculous Europeans, is answered by Dr. Griesinger in the affirmative, and cases are referred to in which the disease was decidedly arrested. Nevertheless, the disease should be in an early stage, and without bowel implication, as dysentery is very apt to ally itself to it. The patients should arrive in October in Alexandria; should go to Cairo in November, and there remain, or go to Upper Egypt or Nubia. In March, or at the beginning of April, they should leave Egypt, and go to Syria.—*Brit. and For. Medico-Chirurg. Rev.* Jan. 1854, from *Vierdolt's Archiv für Phys. Heilkunde*. Heft 3, pp. 519.

14. On Degeneration of the Glandular Structure of the Stomach.—Dr. HANFIELD JONES very truly observes, that no one has yet done for the stomach what Johnson, Simon, and Frerichs, not to mention others, have done for the kidney. And yet the mucous membrane of the stomach is a true gland structure, with a general account of which he commences his paper. The principal lesions he has observed are: 1. An atrophic state of the lower end of the gastric follicles. 2. A fatty degeneration of the epithelium. 3. A fibrous hypertrophy of the submucous tissue. In short, the same organic alterations as occur in many other glands. The relation of these to symptoms has yet to be made out by more extensive researches, but Dr. H. Jones has the merit of commencing this inquiry, with the particulars of two cases. These died of

various diseases, and an account of the structure of the mucous membrane in each is given. The paper concludes with the following passage:—

"The practical results which the above investigation, as far as it has extended, supplies, are: 1. That we may expect not unfrequently to meet with cases where the digestive power of the stomach is permanently weakened by the decay of more or less of its glandular structure. 2. That, in a still greater number of cases, the digestive power is weakened from an atrophy of the epithelium, which, it is conceivable, may, by judicious administration of light, nourishing food, cod-liver oil, and gentle tonics, be reproduced in a more healthy state. 3. That we must be cautious in leeching or blistering the epigastrium for the removal of *gastritis*, which may have no existence. The further our observation extends, the more do we become convinced that the most hopeless diseases with which we have to contend are those depending on essentially chronic degenerations of organs. Who would not rather have to deal with an acute pneumonia or pericarditis, than with a case of confirmed morbus Brightii? How often does our healing skill hang its head in hopeless foreboding when our diagnosis has revealed the existence of an organic lesion! This must of course often be; but how needful then does it become that we should be thoroughly aware of these degenerative tendencies, and exercise the utmost vigilance to anticipate and stay those destructive changes which we are unable to reverse."—*Assoc. Med. Journ.*

15. *On Certain Pathological States of the Blood, and of their Treatment.*—Dr. JAMES COPLAND read an interesting paper on this subject to the Royal Medical and Chirurgical Society (Jan. 10, 1854). After describing the various symptoms and signs of vitiation of the blood, and noting more particularly the different changes in the secretions consequent on such vitiation, the author deduced a series of inferences on which he founded his treatment. He arranged the vitiations of the blood under certain heads or categories, according to the causes, extrinsic or pathological, producing them, with reference to the indications of treatment, and these comprehended the following seven orders:—

1. Vitiations produced by imperfect assimilation or development of the blood-globules.

2. Vitiations occasioned by the increased action of the organs, which waste or decompose the haemato-globulin—which increase the fibrin and augment the urea.

3. Contaminations arising from the absorption of purulent, sanguous, or other morbid matters, into the circulation, or from the imbibition of any of these by the veins or cellular tissue.

4. Alterations sometimes supervening on the foregoing, or complicating the latter, such as fibrinous coagula, or concretions, or inflammations of arteries, veins, or lymphatics, puriform infiltrations, or fomentations.

5. Vitiations occasioned by the imperfect performance, or by the interruption or suppression of a depurating function.

6. Contamination produced by morbid miasms, or by specific seminia, as in malignant, pestilential, and septic maladies.

7. The inoculation of poisonous secretions or fluids, as the fluids from erysipelas inflammations, from asthenic or diffusive inflammation, from bodies recently dead from malignant diseases, or from putrid animal matters.

The treatment appropriate to each of these orders or categories of blood vitiation might be differently estimated by different observers; the author professing, however, to give only the results of his own observation and experience. His practice had been based upon a close observation, and upon rational inferences from such observation. The treatment adopted by the author in these various conditions was then detailed, illustrated here and there by some very instructive cases. The author dwelt at some length on the treatment of that morbid state of the blood which occurred in acute rheumatism, and which is characterized by the redundancy of the fibrinous and ureal constituents of the blood. What medicines would counteract the disposition to fibrinous constituents in the blood, or such as might exist? Calomel, and calomel and opium, diaphoretics, emetics, purgatives, were doubtless excellent

initiatory means to diminish excrementitious plethora; but to promote the depuratory functions, he had found the greatest advantage from magnesia and its citrate, the carbonates and citrates of the fixed alkalies, the baborates of soda and potass, the nitrate and chlorate of potass, sublimed and precipitated sulphur, &c. &c., as well as the various preparations of cinchona and turpentine. For the treatment of the sixth category, the advantages derived from large doses of turpentine were detailed; and the author concluded by expressing his hopes that he should be excused for having made so frequent reference to his own writings, where many of the matters comprised in this extensive subject were more fully discussed; but he had his own originality in some topics to vindicate, as several authors who had recently written, had considered that opinions and ideas were fair objects of plunder, if they could be conveyed away without reference to their originators, and in a different array of words.

16. *Treatment of Cholera.*—MESSRS. PEARSE and MARSTON, in an interesting account (*Med. Times and Gaz.* Feb. 25, 1854) of the cases of cholera treated at the Newcastle Dispensary in 1853, make the following remarks on the treatment of that disease:—

Every one is aware of the conflicting statements made on this head; we believe that there are many cases in which the stages are so rapid, the collapse so intense and speedy, that all remedies with which we are at present acquainted, are utterly impotent. Many of the discrepancies appear to have arisen from the fact that the same remedies have been tried by different men, in different stages and periods of the epidemic; thus, at first, the cases are generally of marked malignancy, and least amenable to treatment; while towards the close, or with some sporadic cases, it is much less so, and the remedies have obtained the credit which belonged rather to a debilitated virus. During the premonitory stage of rice-water purging, without any marked tendency to collapse, we relied upon calomel and opium, in small and frequent doses; if vomiting also existed, we gave the albumen mixture (hereafter referred to). The treatment of cholera, from the pathology, would appear to comprehend—

1. The elimination or chemical alteration of the virus.
2. Antagonizing the effects of the disease.

First. By supporting the nervous system.

Secondly. Restoring, as far as practicable, the normal condition of the blood, and reinstating glandular function.

In the reactionary stage—consecutive fever—

1. To restore the functions of the kidney and skin.
2. To treat local symptoms, particularly the cerebral affections.

During quite the first period of the epidemic, we gave brandy, and pills composed of calomel half a grain, opium and capsicum, of each, one-eighth of a grain, every half hour, with comparatively little success, except in quite the premonitory stage. By degrees, as we better understood the epidemic, we recognized the fact that the incessant vomiting prevented any remedies being assimilated, and that a large number of cases, during collapse, presented that restless condition before described; and, during the reactionary stage, had the most marked head symptoms; and we noticed, further, that in these cases opium had been given largely or very frequently, and that in these the symptoms were decidedly the worst.

If we were asked, what practical facts we had learned during the epidemic, we should reply, Three:—

1. To give as much, and only that quantity (be it ever so small), which the stomach could retain.
2. Not to give opium at all during collapse or consecutive fever.
3. Never to allow the patient to rise from his bed at all, even raise his head from the pillow, nor to allow him to take any nourishment in large quantities.

As we have before stated, the incessant vomiting was a fatal prognostic. Undoubtedly the system requires, and the patient anxiously solicits water, but they always vomited it immediately; and, remembering Dr. Hunter's admirable

common-sense views upon this head, we determined to try our patients with very small doses of liquids, to see whether any—and, if any, what—quantity was retained, and we found almost invariably that half a teaspoonful of liquid every five minutes was retained, and that by degrees it could be increased to a tablespoonful; but if any more, or anything else than the medicine recommended, were given, immediate vomiting was produced, with great prostration, and, too frequently, death. We would particularly desire that this fact should be the basis upon which we ground the success of our treatment in many cases. With regard to opium, its baneful influence was early detected by us all, and the fatality which marked those cases of a restless state of collapse was nearly allied to, if not to be attributed to, the effect of opium.

If, as we believe, death in consecutive fever is intimately connected with poisoning by urea, it can be readily understood that opium would be decidedly injurious, increasing greatly the cerebral congestion, and co-operating decidedly with the retained urea in causing death by narcotism.

We have notes of a great number of cases which were apparently doing well in every respect, but the patients anxiously desired to rise, which some of them did, from the bed entirely; others merely sat up and conversed. In all these cases, sudden death resulted apparently from syncope.

If patients were treated in an hospital, it would be well worth considering whether it would not be advisable to secure the horizontal posture by a strap over the chest, lightly affixed to the bedstead; many lives, we feel assured, might be preserved. Among, also, the many causes of failure, we must notice the injurious effect which the reception of solid food, or too large a quantity of liquid, into the stomach produced. In many cases it was instantly rejected by vomiting; in others, a return of the purging; and in all it was injurious, producing frequently tenesmus, often great pain in the head, and sometimes syncope. It is probable that the enteric mucous membrane is comparatively denuded of epithelium, and that, during recovery, it is lined by very imperfectly developed cells, while the sympathetic centres remain in a state of morbid irritation; however it may be, the contact of solid food, or any error in diet, was a most frequent cause of relapse; operating upon the system sometimes almost like a shock. The treatment that we adopted was a modification of that recommended by Professor A. Buchanan, of Glasgow, who pointedly remarks: "The natural processes by which a spontaneous recovery from cholera is effected are chiefly by the reabsorption of serum, and the absorption of fluids, &c. The study of these natural processes is of the highest importance, that our artificial treatment may be adapted to promote them, or at least may offer no impediment to their progress." We gave half a grain of calomel every twenty minutes or half hour, and one or two teaspoonsful of the following mixture every five or ten minutes, according to the quantity capable of being retained; at the same time excluding water, if it produced vomiting:—

R. Vitelli ovi $\frac{3}{4}$ ij, aquæ $\frac{3}{4}$ xvj, spt. vini gallici $\frac{3}{4}$ ij, potass. nitratis 3ij. M.

This mixture we invariably found was retained after a short period, and was exceedingly pleasant and grateful to the patient; at the same time, we used counter-irritation freely, in the shape of sinapisms to the epigastrium. So soon as there was evidence of the action of the liver, or the stage of collapse was passed, we gradually diminished the calomel, and persevered in the albumen mixture, the brandy being now entirely withdrawn, until the action of the kidneys was fully restored, combating the local cerebral symptoms by removal of the hair, the application of cold to the head, and counter-irritation.

We can confidently state, that as much success may be anticipated from this as from any known treatment, and we found it very far superior to any other.

As calomel is the remedy which has gained the greatest repute in this disease, and as it appears to have the power of producing some elemental change in the constituents of the blood, we conceive that in administering it we were most likely (however empirically) to meet the first indication. We considered, also, that the "albumen mixture" was far better calculated to meet all the indications than any combination we knew of, by diluting the blood with a fluid as nearly like serum as any artificial production could be. The nitrate of potass having the power of dissolving fibrin and reddening the clot of venous blood, it

might have some beneficial action; and by far the best diuretic we knew of was as speedy a dilution of the blood as practicable, with saline solutions, and restoring its albumen.

17. *Nitrate of Potash in Rheumatism.*—Dr. RICHARD ROWLAND has instituted some clinical experiments, with a view of ascertaining the comparative value of several remedies in the cure of rheumatism. The first article selected was the nitrate of potash. The questions which he desired to determine were:—

1. Has the nitrate of potash any considerable power in the cure of rheumatism?
2. Is there more danger of heart-disease occurring under its employment than in other methods of treatment?
3. In what form of rheumatism is the remedy most applicable?
4. Is there any preliminary management required to insure its favourable action?
5. What is the minimum dose necessary to obtain beneficial results?
6. Are evil consequences to be apprehended from its continued employment in considerable amount?

In a clinical lecture (*Lancet*, February 11, 1854), Dr. R. presents a summary of thirteen cases of rheumatism in which he tried this remedy, and gives the following as the conclusions at which he has arrived:—

“From a summary of these cases, it appears that the average duration of the acute symptoms, after the commencement of the treatment, was about eight days. In three cases, the rheumatism disappeared before the seventh day. In one, it was protracted to the eighteenth. But most of the patients had the complaint some days before their admission to the hospital, and sometimes it was not possible to obtain precise information as to the date of the seizure; but, so far as this could be determined, the whole average period of the acute cases appeared to be about sixteen days.

“Taking the results from the most unfavourable aspect, it must still be admitted that they support the opinion of the efficacy of the nitrate of potash in rheumatism. In some of the cases, the relief followed its exhibition almost immediately, and the improvement was rarely delayed for any considerable period. Besides the very obvious advantage of removing a complaint so painful as rheumatism as speedily as possible, it is otherwise important to lessen its duration, and especially because it diminishes the chances of those frightful complications which may attend the disease at every stage of its course.

“In no instance was there even threatening of valvular disease. The condition of the heart was carefully watched at each visit, and in all the patients it preserved its natural sounds and rhythm. This scrutiny was always repeated before each patient left the hospital, and with similar negative results. It is true that in two instances (N— and P—) the endocardial murmur existed; but, in both these patients, the complication did not commence in the hospital. N— had an acute attack of rheumatism, in which the nitrate was prescribed with complete success, no vestige of heart affection being present on her dismissal. But, a fortnight afterwards, she was brought to us again, having had a relapse of the complaint, and now a loud systolic murmur was immediately detected. In P—, the heart was hopelessly injured previous to his admission. These cases cannot be, therefore, set down as evidence against the utility of the nitrate of potash in rheumatism. At the same time, the number of examples is far too few to establish the probability of immunity from heart complication under this treatment. It can only be said that nothing of the kind occurred in these patients.

“With regard to the form of the disease in which the salt is most likely to prove beneficial, the testimony derived from the cases now cited decidedly shows that its efficacy is most remarkable in acute rheumatism; and it might almost be said that the beneficial result was the more striking in proportion to the activity of the attack. When subacute rheumatism supervened upon the chronic, although the nitrate was commonly efficient in removing the former, it seemed to exercise no influence over the latter. So invariably was this observed, that I have ceased to prescribe this medicine in purely chronic cases. Pains of a gouty tendency, and the capsular variety of rheumatism, appear to be equally irremediable by this means. No preliminary treatment was adopted, but the salt was almost invariably commenced at whatever period of the com-

plaint the patient happened to be on his admission. There is no reason to suppose that its influence is greater at one stage than at another. It should be stated, however, that an aperient was prescribed when it was required, and sometimes an anodyne at night, when the sufferings were so great as to prevent sleep.

It is not easy to determine the mode of action of the salt in this affection. The theory that it removes from the system a supposed redundancy of the lithates and lithic acid can hardly be sustained. Not only was there no marked acidity of the urine in several of the patients, but in two of them it was strongly alkaline, and in one loaded with phosphates. Even during the continuance of the nitrate, the urine regained its property of slightly reddening litmus-paper. Nor was there any sustained sensible action either on the bowels, skin, or kidneys. Purgings never once occurred. In a few cases, the perspiration was occasionally increased, but by no means continuously; and, bearing in mind the tendency to copious sweating in rheumatism, it might be questioned whether the salt does not exert an influence in moderating, rather than augmenting, the cutaneous discharges. The urinary secretion was increased more frequently, and rather more permanently, but the diuresis was never very remarkable. Whether the salt possesses any action on the fibrin of the blood, these observations do not enable me to determine, but the symptoms and aspect of some of the patients scarcely warranted the idea that there was an excess of that ingredient in the circulating mass.

"The dose of the nitrate never exceeded half an ounce, and it was sometimes limited to three drachms daily; it was dissolved in a pint of water, the patient being directed to take the whole in twenty-four hours. This is a much smaller quantity of the salt than it has been recommended to employ for the cure of rheumatism; but there is a manifest advantage in prescribing it in as small a dose as will answer the purpose, for there will be less danger of its producing gastric or renal irritation; and, when two or three ounces are given daily, a large quantity of fluid is required for the necessary dilution, and this circumstance alone would render the remedy too disgusting to admit of its general adoption. No injurious consequences arose in any instance from the exhibition of the medicine, nor was there any complaint made by the patients of the disagreeableness of the remedy, or of any inconvenience arising from its use. There may be an apparent exception to this fact in the patient W—, who complained of dysuria when undergoing treatment with the nitrate. But, as this symptom continued although the medicine was withdrawn, and subsided after it had been again prescribed, it is hardly probable that the irritation had been occasioned by it in the first instance."

18. *Cerebral Complications in Acute Articular Rheumatism.* By VIGLA.—These important complications have been hitherto mostly overlooked in pathological treatises. They are not, however, extremely rare, for, in three months, M. Vigla has met with five cases, two of which recovered, and three proved fatal. Out of sixty-five cases, this complication was observed in the proportion of one in thirteen. The cerebral affection is perhaps the most important and dangerous complication in rheumatic fever. It varies, however, in character and intensity in different cases. The different kinds have been classified as follows by M. Vigla:—

1. Simple delirium, similar to the sympathetic or nervous delirium which occurs in many acute febrile diseases, whether of idiopathic or traumatic origin; in short, *rheumatism complicated with delirium*.

2. Delirium, accompanied by most of the symptoms, and probably also the lesions of meningitis, or the *rheumatic meningitis* of authors.

3. Sudden and unexpected ataxic condition, quickly succeeded by fatal collapse or coma, the *rheumatic apoplexy* of Stoll and some other authors.—*Archives Gén. de Méd.*

19. *Cases Illustrative of the Effects and Manner of Action of Particular Remedies in Diabetes.*—Dr. W. R. BASHAM has published (*Lancet*, Nos. for Jan. 21 and 28, 1854) five cases of diabetes, to illustrate the effects of some remedies recently

suggested for diabetes. The principle upon which the several remedies were employed rests on the opinion that diabetes is a disorder of the digestive and assimilative functions, in which the power of conversion and appropriation of the farinaceous and amylaceous elements of food is singularly perverted and disturbed. These alimentary principles are more rapidly converted into sugar or glucose than in healthy digestion; immediate absorption by the venous capillaries of the stomach follows, the further stages of oxidation are abruptly arrested, and the glucose, quickly passing into the circulation, is, without further metamorphosis, excreted by the kidneys. I postpone, also, to another opportunity, any reference to the interesting question, whether all the sugar passed by diabetic patients is solely derived from vegetable food, or whether the tissues of the organism, as well as the nitrogenous elements of animal food, may not also contribute to the formation of the large amount of saccharine matter excreted in glucosuria. The regimen in the following cases consisted in diminishing, as far as possible, the supply of vegetable material containing fecula or starch, the mass of nutriment being derived from the nitrogenous class of aliments. The medicinal remedies may be classed as follows, the more novel ones being placed first:—

1. The permanganate of potass, hypothetically to supply the stomach with an increased amount of oxygen, by which the metamorphosis of the farinaceous material should be hastened forward into a higher state of oxidation than that of sugar, permanganate of potass, as is well known, out of the body, converting sugar into oxalic acid. Mr. Sampson, who first employed it, states (*Lancet*, Jan. 8, 1853) that his attention was drawn to this salt when seeking for some remedy which should give out oxygen when taken into the stomach, with the view of assisting the imperfect action of the digestive and assimilative functions. He records a case in which it appeared beneficial. We must not overlook the fact, however, that a prominent error in the digestive process of the diabetic patient is the premature and rapid conversion of the fecula of food into sugar; it is hasty and imperfect—not tedious or protracted.

2. Agents that, hypothetically, should retard and delay the formation of glucose in the stomach. Certain substances possess the property of arresting the saccharine, vinous, and acetous fomentations. If glycerin be added to a half-fermented infusion of malt, the further formation of acid is checked; and I have found that a mixture of potato-starch and dilute nitric acid undergoes chemical conversion into dextrose and glucose more slowly, and is all but arrested, if glycerin be previously mixed with the starch. Glycerin, creasote, and sulphite of soda have been tried on this principle.

3. Opium and opiates, to act on the nervous system; to diminish the excitement and irritability of the nervous centres.

4. Remedies which relieve thirst, and aid the digestive process by the supply of hydrochloric acid, and which tend indirectly to diminish the amount of fluid excreted by the kidneys, as recommended by Dr. Owen Rees. (*Medical Gazette*, vol. xl. p. 365.) Hydrochloric and some vegetable acids.

5. Diaphoretics, stimulating the palpably defective cutaneous secretion, and thus vicariously lessening the proportion of fluid to be excreted by the kidneys. Antimonials; warm baths; flannel clothing.

6. The use of alkalies, particularly ammonia; on the hypothesis of Mialhe, that the starch of food is equally converted into sugar by healthy and diabetic persons; but that in health it is metamorphosed and burnt off by the presence of alkalies, undergoing complete oxidation, and is ultimately discharged as carbonic acid from the lungs; but that in diabetes it is not oxidized, owing to the deficiency of alkalies in the blood, the sugar, without further change, passing off by the kidneys.

These several remedies have never been administered in conjunction; and if, in the same case, two or more have been tried, a day or two has been allowed to elapse, that the observations recorded might be fairly deduced from the remedy employed.

The results were as follows:—

1st. The permanganate of potass was given in two cases; during its administration, the amount of sugar excreted gradually increased, although the fluid

amount of urine became somewhat less, and the thirst appeared to be alleviated. No inconvenience attended its use; ten-grain doses were taken without any unpleasant effects on the digestive organs; indeed, it was thought that some benefit arose from it, as the fulness and eructations, in one case, seemed relieved by it; but, during its administration, the ratio of the sugar steadily increased. This occurred equally in both cases; the symptoms of each differed but little in intensity. There was but a slight discrepancy in their several ages, and in both the disease was unaccompanied by any pulmonary complication, so that there was scarcely room for a doubt that the increased amount of oxygen supplied to the food by the permanganate of potass facilitated the formation of sugar, and did not, as hypothetically inferred, advance the chemical conversion of the glucose into the stage of acid metamorphosis. Dr. Wood, of Philadelphia, has tried yeast in diabetes, on the principle here enunciated, that, as it converts sugar out of the body into acid products, acetic and carbonic acids, it might bring about analogous changes in the stomach. On a like principle, Dr. Gray, of Glasgow, has tried rennet, which converts sugar into lactic acid.

2dly. From the operation of the agents of the second class, administered on the hypothesis of their possibly retarding the conversion of the amylaceous elements of food into sugar, we can deduce only negative results. They were tried only in one case, and, during a period of twenty-one days, the amount of sugar was only faintly diminished, the specific gravity falling from 10.44 to 10.40, the average daily amount of urine remaining the same. The case in which these remedies were tried was one of great severity, and ultimately proved fatal; yet, notwithstanding, other remedies succeeded in reducing the amount of sugar, though only temporarily. Although glycerin and sulphite of soda failed in producing any effects in this case, I am nevertheless desirous of again submitting these remedies to further trial, and testing, by the evidence of more extended observation, the fallacy or otherwise of their hypothetical agency.

3dly. *Opium and Opiates*.—These cases afford but a limited amount of evidence on the action of these agents. Opium certainly operated as a palliative; the thirst became much relieved, the amount of urine diminished, and the skin, by the presence of sudoresis, indicated a relief to its obstructed function; but the daily average amount of sugar excreted was not materially lessened, and the physical condition of the patient was not improved. Some constitutions will bear opium much better than others, and it must not be inferred, because these cases do not exhibit its agency in a more favourable light, that opium may not in other instances produce more remedial effects.

4thly. *Hydrochloric Acid*.—The action of this mineral acid appears in a favourable light in one case. It promoted the digestive function, relieved the flatulence, and probably furnished an important material to the solvent functions of the stomach. In other forms of dyspeptic derangement, its agency is familiar. It should always be taken some few minutes before food.

5thly. *Diaphoretics*.—These may be administered in conjunction with opium. The suppressed function of the skin is so very evident in all cases of diabetes—becoming harsh, wrinkled, and furfuraceous, patients seldom perspiring, and relief being always apparent so soon as any moisture is obtained on the surface—that remedies which excite or assist in promoting cutaneous excretion are always more or less indicated. Opium itself tends to promote diaphoresis, even when given alone, and its action in this respect may be much increased by combining it with antimonials. Flannel clothing should be strictly enjoined. Several of these cases illustrate the advantage of warm baths in conjunction with these agents.

6thly. *Ammonia and Alkalies*.—The testimony of almost all writers on this disease is in favour of the remedial power of alkalies, particularly of the carbonate of ammonia; and the cases just detailed corroborate the opinions of the most experienced physicians on their efficacy. The fifth case presents the most satisfactory proofs of this plan of treatment, as the patient left the hospital temporarily cured. Of the mode of action of alkalies in this disease, little is known beyond what is hypothetical. Mialhe states that the blood in diabetes is deficient in alkaline salts; and he affirms that the ultimate conversion of the

sugar formed out of the food, into products capable of being eliminated by the respiratory function, is not effected in consequence of the deficiency. To supply this defect should be the leading principle in the treatment of glucosuria. Whether we adopt this theory or not, the fact remains indisputable, that a larger amount of relief is obtained by a steady and persevering use of ammonia and alkaline salts, than can be procured by any other class of remedies. However, to render them efficient, a well-regulated diet must be rigidly followed, and this should be limited as much as possible to animal or nitrogenous food. In the opinion of Bouchardet, clothing ranks next to diet. Moreover, the intelligent co-operation of the patient is absolutely necessary; for, unless he can be made to understand and enter into the object for which so strict a diet is prescribed, the effects of the alkaline plan of treatment will prove uncertain and unsatisfactory. The progress of cases in private practice is, for the most part, always more satisfactory than among hospital patients, principally for this reason—that intelligence lends force to the efforts of self-denial, and develops a more powerful control over the appetites and habits. The less educated are but little inclined to abstain even from things which they know to be positively injurious, and they with difficulty can be brought to comprehend the necessity for refraining from bread and vegetables, which their necessities have always taught them to be the staple articles of their food.

I cannot take leave of this subject of diabetes, without referring to Dr. Hassall's very valuable paper, in the *Medico-Chirurgical Transactions*, on the "Development of Torulæ in the Urine." When sugar is present in urine in smaller quantities than can be detected by the action of chemical reagents, he has shown that the sporules of the sugar fungus, or even a higher stage of development, may be readily detected by the microscope.

20. *Treatment of Diabetes.*—Dr. H. BENCE JONES, in a clinical lecture (*Med. Times and Gaz.* Feb. 4, 1854) makes the following remarks on this subject: "M. Bouchardat has long recommended claret in this disease, and to the amount of two bottles even in the day. Dr. Prout used to permit his patients to take porter. Being desirous of determining which of these directions was to be preferred, I made some experiments regarding the amount of saccharine matter and acid in wine and beer. I have come to the conclusion, that claret is usually perfectly free from all saccharine matter. The same may be said of Burgundy, Rhine wine, and Moselle wine. Very rarely, indeed, a sherry may be met with which contains no sugar, but generally sherry, port, Madeira, Marsala, contain amounts of sugar varying from 2 grains to 34 grains to the ounce. The best porter gave me from 23 grains to 40 grains of saccharine matter to the ounce; the best stout, from 45 grains to 64 grains; the best bitter ale, from 14 grains to 130 grains to the ounce. Hence it appears that claret will not increase the sugar in the urine, while porter will do so considerably. Direct experiments with diabetic urine has also proved the same fact."

"Spirits, as brandy, whiskey, rum, usually contain no traces of sugar, and hence they may be prescribed for diabetic patients.

"M. Bouchardat, who has seen more of this disease than any one, says that milk is not allowable. The most careful experiments lead me to the opinion that milk scarcely increases the sugar in the urine, even when it is the sole article of diet."

It is most probable that milk-sugar is not easily converted into glucose in the human body. I have, therefore, constantly permitted it to be taken by diabetic patients. It is apt to give rise to constipation, and this has been best obviated by taking an equal quantity of fluid magnesia with the milk in the morning.

One of the terminations of diabetes is by phthisis, and on this account, as well for the emaciation, Dr. Jones was led to prescribe cod-liver oil. To a young woman in St. George's Hospital he gave an ounce daily for three months. In this time she gained eleven pounds in weight. Her thirst so diminished that she passed only two and a half pints of urine in twenty-four hours, instead of twelve pints.

"A man, 40 years old, came into the hospital, passing seven pints of urine in

twenty-four hours. He was put on cod-liver oil, one and a half ounce in the day, with a drachm of liquor potassæ. In the first fortnight he lost four pounds and a half. He then took three ounces of oil in the day, with two drachms of liquor potassæ, and in a fortnight he had gained eight pounds. The quantity of urine was reduced to three pints. At the end of five weeks from his admission, he went out at his own request, saying that he was stronger than he had been for eight months, and that he was quite well. The urine still contained a small quantity of sugar."

An enormous amount of cod-liver oil may be taken in diabetes; thus, one of Dr. Jones's patients took, in five weeks, eight pints, fourteen and a half ounces.

On first entering hospital, this patient lost eight pounds in weight; while taking the oil in large quantities, he regained this and one pound more. The urine, with the diet, decreased from five pints, specific gravity 1040, to two and a half pints, specific gravity 1032. The sugar never disappeared from the urine.

Dr. Jones has tried various specifics that have been from time to time proposed. Permanganate of potassa, rennet, so called pepsin, arsenic, electricity, Vichy water, creasote, opium, bark, iron, mineral acids, alkalies, and many others. Hitherto, the search for a specific has only proved that none is yet known to exist.

"Still," he says, "when we look at the morbid anatomy, when minute microscopical examination can give no clue to the seat of the disease, when it pronounces that the stomach and viscera are healthy, when it indicates that a functional error has ended life, we are led to hope that further investigation (some remarkable experiments have lately been published by Dr. Harley on the artificial production of diabetes in animals by the action of stimulants injected into the vena portæ) may lead to the perfect theory of the disease, and by this to the radical cure, instead of the palliative treatment, of this most interesting disorder."

21. Dropsy in Relation to Treatment.—Dr. BARCLAY read a paper on this subject before the Western Medical and Surgical Society, January 20, 1854. He commenced by alluding to the high mortality of this disease, and stated that the only disease which at all approached it in this respect was phthisis. He drew his conclusions, and carefully illustrated his views, from the Medical Registries in St. George's Hospital during the years 1851-52. He then restricted the term dropsy to anasarca and ascites, considering that as hydrothorax, hydrocephalus, &c., when not presenting themselves as mere isolated portions of general dropsy, are practically found only as the result of inflammation, they should be classed accordingly. Although the distinction between anasarca and ascites is generally clear, yet in many cases both forms are present, but a little care will generally discern the primary form. The morbid states giving rise to ascites are much more fatal than those associated with anasarca, more than two-thirds of those admitted with the latter form being discharged from the hospital cured or relieved, while less than one-third of those affected with ascites reap the like benefits; but here we should bear in mind that many anasarca patients return again and again to the hospital to be relieved of the same set of symptoms. Though the actual frequency of, and, consequently, the actual number of deaths from, anasarca is far greater than from ascites, yet the ratio of mortality in the latter form is exactly double that in the former. With regard to anasarca, though by far the greater number of cases are associated with disease of either kidney or heart, yet certain cases will compel us to attribute the disease to some other cause. During the two years alluded to, nearly one-fourth of these cases could not be accounted for. The most frequent association of this disease is disease of the kidney, with or without disease of the heart; next comes disease of the heart itself. But though these lesions are apparently so evident a cause for serous effusion,

¹ My friend, Dr. Handfield Jones, has lately examined minutely for me the stomach of a patient of mine who died of diabetes, in St. George's Hospital. It appeared to be healthy.

yet, upon further analysis of these cases, there will be found by no means such a direct connection between the disease and symptom, except where both organs were implicated. This assertion is borne out by the fact that, in the two years before mentioned, but few cases of diseased kidney, and still fewer of diseased heart, presented no other malady of sufficient importance to find a place in the register of disease; and to every one conversant with disease, the pale face of albuminuria, and the dusky hue of impeded circulation, point out something beyond the mere change of structure—some change in the blood itself—to be one of the necessary associations of dropsy. We found also that 63 per cent. of the patients labouring under disease of the kidney, and 42 per cent. of those with disease of the heart, have at the same time been affected with anasarca, and that, in some cases, the only other complication found was bronchitis with emphysema. All which facts go to prove that disease of the heart and kidney may go on for years without causing any dropsy, until the mucous membrane of the lungs becomes congested, and that serous accumulation follows. The explanation then is found in the obstruction that takes place in the circulation through the lungs, and secondarily in the effects of a chronic bronchitis on the constitution. Next to bronchitis, phthisis stands as a cause for dropsy, its degree probably being regulated by the amount of night-sweats, which draw off, to a certain extent, the serous accumulations. In other cases, anæmia goes to prove that some state of the blood is an essential element in the occurrence of dropsy.

In regard to cardiac disease, valvular lesion is the most common cause of dropsy, and hypertrophy the least so, which shows that the production of dropsy depends upon some failure of the *vis à tergo*—a view borne out by a careful analysis of the various cases. In mitral disease, the danger does not depend upon the loudness of the murmur, but upon the feebleness of the pulse, and in aortic disease dropsy seldom occurs until regurgitation is established. An increased circulation alone, too, is barely a cause of dropsy, unless some obstruction exists to the circulation of the blood, or there be an abnormal tendency to transudation of serum. Bronchitis, whether due to congestion of the lungs, from mitral regurgitation, or from exposure to cold, is one of the diseases which act in this manner. A similar (but a more fatal) result is seen in obstruction to the circulation through the liver, and in all these cases the other causes, which of themselves originate dropsy, may come into play. With regard to valvular disease, we must bear in mind its detection at an early period, while alteration of the size of the heart only becomes manifest after it has acquired a certain degree of intensity, which fact, though it may have much effect upon the numerical relations of the lesions, still is of little importance, as the dropsy never occurs in an early stage of either form of disease. He then remarked—

1. That a systolic murmur may coexist with dropsy, and yet have nothing to do with its production, the cause being simply an anæmic condition of body.
2. That hypertrophy of the heart may be masked by emphysematous lungs, leading one to the supposition that either atrophy or dilatation of that organ existed.
3. That a mitral murmur may be covered by a turbulent action of the heart.
4. That cases occur in which regurgitation through the mitral valves depends upon hypertrophy, a condition leading to no error, as the results are the same whatever the cause of the regurgitation.

The relation of kidney disease to dropsy was then discussed, in which he stated that each stage of the disease was marked by a peculiar state of the urine. In the early stage, the urine is generally clear and free from albumen, though this condition of the secretion sometimes is found in advanced stages of the same disease, which must make us careful in our examinations of the urine, and in forming our suspicions as to the degree of renal change. In the congestive stage, albumen is present, and in acute cases of dropsy, as after scarlatina, it is found in small quantities only in connection with an abundant supply of lithates. In the hemorrhagic stage, the albumen is most abundant, but will be found to bear no relation to the blood passed. Diseased kidney acts in the production of dropsy in two ways—by suppression of urine, and by causing a drain of

albumen and salts from the body, in consequence of which the blood becomes impoverished, and, when disease of the heart is present, it is not difficult to see this morbid state act with increased energy in company with albuminuria. In ascites there is more obscurity, and though the dropsy may arise from obstructed circulation through the liver, it may also happen if the mutual balance between absorption and secretion of the peritoneal surface be destroyed. But the dropsy may be due to some general disease of the system, and be associated with anasarca, in which case some distinct cause will be found for the latter. A diseased state of the peritoneum, including inflammation and malignant conditions of that membrane, may also cause ascites, and, as either may be associated with renal or cardiac disease, it is clear that all such cases are connected with and dependent on some obstruction to the onward current of the blood. As dropsy seldom depends upon the morbid state of any organ alone, but generally in connection with some functional disturbance of it for the time being, these superadded causes are amenable to treatment, though the original one may not be. In simple, uncomplicated anasarca (as after scarlatina) we have simply to counteract the suppression of urine, but in other cases we must improve the tonicity of the blood and system generally. When the kidneys are congested, and effusion is an immediate result, we should use the intestines and the skin, as our channels for the discharge of the serum, rather than the kidneys. In complicated cases, we often have irritation to soothe, and inflammation to subdue, before the dropsy be attacked. In chronic bronchitis, in connection with these cases, we must attend to the general health, rather than use expectorants. The heart must be modified by digitalis, and the blood improved by iron, and the kidneys excited by vegetable salines and buchu, rather than by more powerful diuretics. Purgatives are doubtful remedies, and promise most good in ascites.

The discussion which followed embraced the subject of acupuncture in cases of dropsy, which was strongly recommended by some members present.—*Lancet*, Jan. 28, 1854.

22. *Hypertrophy of the Spleen*.—Prof. CHRISTIANSEN, of Copenhagen considers splenic enlargement to be caused by such mechanical obstacles as impede the return of the venous blood to the heart, and by such dyscrasic states of the blood as give a tendency to hyperæmia. He has frequently met with it in cases where there was hypertrophy of the right ventricle of the heart. In these circumstances, he says, so called "infarctions," or capillary apoplexies, are not uncommon, presenting, in its substance, clots which, at first, are firm with well-defined borders, and afterwards become decolorized and softened. Hypertrophy of the spleen also occurs in cases where there exists any impediment to the circulation through the vena cava; where there is constriction or impermeability of the vena portæ; and where there has been suppression of the menstrual or hemorrhoidal evacuations. In the blood-diseases, as typhus, cholera, pyæmia, and delirium tremens, he says, the organ is frequently, not only enlarged, but also altered in structure. He has never seen enlargement from intermittent fever, as this disease is extremely rare in Copenhagen, but he believes it to be due to the repeated hyperæmic condition of the organ. He has frequently observed splenic hypertrophy occurring in cases of Bright's disease, so that the organ weighed from 3xvi to 3xx. Its condition, in these cases, resembles that observed in it by Rokitansky after intermittent; *i.e.* it is so hard and brittle that it can easily be cut into thin slices or broken into fragments. It presents, on section, a coarse granular structure, nodules the size of pepper-corns being imbedded in its substance; it is also of a bluish-red or dark violet colour, which becomes bright red on exposure to the air. Its form is somewhat changed, the inner border being broader and firmer than ordinary. The fibrous capsule is not firmer than usual, and there are no morbid adhesions to the peritoneum, although these conditions frequently are found in the enlargement following intermittent. The author thinks this condition of the spleen arises from a deposition of albumen in the substance of the organ, and surmises that, after the absorption of the watery elements, the

albumen remains behind in the Malpighian bodies, in a solid form, occasioning, by their dilatation, the granular structure alluded to.

Prof. Christiansen has found many pathological lesions of the thoracic and abdominal viscera existing in connection with enlarged spleen. Thus, he has found the inferior and posterior parts of the lungs infiltrated with dark-coloured blood; imbibition of the heart, especially of the inner wall of the right ventricle, and accumulations within it of grumous blood; distensions of the veins surrounding the Malpighian pyramids of the kidneys; sanguineous effusions into the peritoneal cavity, and into the external cellular tissues. In all cases, he found blood extravasated into the intestinal canal, resulting from a diphtheritic inflammation of the mucous membrane, which had caused, during life, bloody evacuations with tormina and tenesmus. As regards treatment, he admits that very little is known. He has seen one case do well under the use of *plumbi acetum*. Where the patient's strength will bear them, strong counter-irritants, as moxa, caustic, and the actual cautery, may be tried. In the hypertrophy following intermittent, quinia seems to him the best remedy for the restoration of the general health.—*Monthly Journ. Med. Sci.* Jan. 1854, from *Schmidt's Jahrbücher*, Bd. 79.

23. *Sulphate of Manganese in Hypertrophy of the Spleen.*—Prof. GINTRAC recommends this salt as a substitute for, and adjuvant of chalybate remedies, for improving the condition of the blood in anaemic patients. He relates an instance of ascites, where oedema, with great splenic enlargement, formed the sequelæ of intermittent fever, in which $1\frac{1}{2}$ grains (0.10 grammes) of this drug, given twice daily in the form of pill, produced a complete cure.—*L'Union Médicalc*, lxix. 1853.

24. *Observations on a Case of Fecal Obstruction.* By R. CHRISTISON, M. D., Prof. of Mat. Med. and Clin. Med. in Univ. of Edinburgh.—Some persons have such a horror of aperient medicines, that they cannot persuade themselves to take one oftener than twice a week, or once a week only. And, nevertheless, you will sometimes see them keep their health, and maintain their bodily comfort. But, for the most part, you will find it a sound general rule, to insist with such people on a more liberal use of aperients; and the great variety we now possess of convenient compound aperients, will enable you to find some one suitable to the constitution of any body, and reconcilable with almost any prejudices.

There are others whose prejudices are unconquerable, and who will not take laxatives at all, though their bowels do not move of themselves above once a week, if even so often. And it is right you should be aware that this apparently most unnatural and preposterous habit is not of necessity, and in all cases, a habit injurious to health. You will occasionally meet with men so singularly constituted, that they enjoy sound health upon a weekly stool. And, indeed, all perhaps that can be well said of them is, that they are rather to be envied by their fellow-creatures, for an endowment which must be frequently found very convenient. But such people sometimes get into difficulties. About two years ago, a gentleman from Wigtonshire, a landed proprietor, attached to agricultural pursuits, and, therefore, never without free air and exercise, consulted me about a serious difference he had with his medical advisers in the country. Having recently recovered under their care from a severe pneumonia, they made the not unreasonable stipulation, when they ceased to attend him, that he should take a laxative every three days, to correct a constipated habit. To this he demurred, on the very natural ground that, until his late illness, he had enjoyed excellent health for sixty years, although his bowels had been habitually moved, all his life, only once a fortnight. This gentleman had made a journey of one hundred and twenty miles for no other reason than to get the question between him and his physicians settled by some competent authority in therapeutics; and, in referring to me for the purpose, he mentioned, for my further guidance, that a neighbouring gentleman of his acquaintance, of the age of seventy, had told him that he too had immemorially evacuated his bowels only every alternate Sunday, without being able to recollect

lect having ever had an illness. It was scarcely to be wondered at that their common experience half inclined them to think that their constitution was the natural and patriarchal one.

Our hospital patient seems to have been of the same opinion with these elderly agriculturists. Like them, he has had some experience of life, being now seventy-four. Like them, too, he has enjoyed singularly good health, being a surprisingly fresh-looking man for his years, notwithstanding that he had passed through severe trials in early life. As a soldier in India, he sustained, when very young, a spear wound of the leg, where he has had, almost ever since, a small open ulcer, which he ascribes to the spear having been poisoned. In the Spanish war he was wounded at the battle of Barossa, in 1811. There are now evident marks of the bullet having passed through him from the left groin, piercing the blade of the *os ilium* in its course. For two years he lay in hospital; and recovering with a shortened limb and stiff joint, he was invalided on a pension of one and sixpence halfpenny, as a wounded sergeant and soldier of twenty-one years' service. This he has now enjoyed for forty-one years. Nor has his wound much incapacitated him; because, for many years, and down to his present illness, he had actually worked as a railway labourer. During this long period, he lived on his pension and wages in great comfort and sound health, until, on lately leaving off work, he became liable to constipation. At first, his bowels were moved every other day in general, and afterwards seldom oftener than once a week, unless he took physic, which he did seldom. At last, the action of the bowels seemed to cease altogether, and he went for four weeks without any evacuation, even though he made occasional trial of a laxative. At the end of the fourth week, a strong dose brought away a great accumulation. After that he had no further evacuation, and it is now three weeks ago. He had again made a few gentle attempts to assist nature; but he did not much insist upon this, because his lodging-house had no convenience, as he said, for a man under physic. During the entire period of seven weeks, he assures us he had no pain or other suffering whatever. But at last his belly got very large, so that his trousers would not button over it; and on this account he applied here for relief, and not for any actual illness.

On admission, he had no appearance of any suffering. He seemed a fresh, vigorous, active, cheerful man. He took his food tolerably well; the pulse was natural; and the tongue was only a little furred. "The abdomen," to quote the hospital journal, "is much distended, especially in the iliac regions, where there are two large prominent swellings projecting laterally, so that the crest of the ilium on each side is quite sunk, the tumours projecting much beyond the bones. There are different irregular swellings at different parts of the abdomen, especially in the track of the colon. Over some of these points percussion is quite dull; over others it is tympanitic. The circumference of the abdomen, where largest, is 39½ inches."

As it was judged unsafe to give him active purgatives by the mouth at once, in case of the great gut being firmly obstructed with hardened feces, a turpentine injection was properly administered by the clinical clerk in charge of him. The result was "a prodigious discharge of fecal matter of all degrees of consistence," much of it composed of very hard scybala. A dose of jalap and calomel given immediately after this forerunner, brought away also a great mass of feculent matter. Next day, being quite well, but with the abdomen as large as ever, another similar dose occasioned only an ordinary discharge. On the third day, the swelling being equally great, though now quite uniform, and everywhere clear on percussion, I gave him what has always appeared to me the most effectual of all safe energetic purgatives in cases of simple fecal accumulation—two drachms of oil of turpentine with six drachms of castor-oil, in the form of emulsion. But he had only two scanty loose discharges, and the belly continued in the same state, presenting especially the singular enlargement and overlapping of the iliac regions.

It was now apparent that, owing to long-continuous distension of the bowels with feces and gases, their muscular coat had lost its tone, in some regions at least, and especially in the cæcum and descending colon. It was then pro-

posed by the clinical clerk to resort to galvanism for relief from this paralytic condition; which suggestion was at once adopted. It is more than twenty-five years since galvanism was recommended as a useful remedy in cases of obstinate constipation; and we can easily see that it may be useful, and upon what principle it acts. The first way of using it was by directing the galvanic current from the mouth to the anus; and in that way it seems to have been most effectual and prompt in some cases. But its action is thus rather painful; and ulterior observation has shown that passing the current in various directions through the abdomen itself may be sufficient. This remedy seemed even more applicable to the state of our patient after the bowels had been cleared out. And accordingly it acted with wonderful energy and success. After the current had been passed for some time from before backwards, as well as from side to side, he had in an hour a copious evacuation, in three hours another, and next morning a third. Flatus was also discharged in abundance; and the abdomen fell greatly, but still not completely, above all in the iliac regions. The pain of the galvanic action, however, had been so great, that the patient begged to have a day's respite. In fact, he declared his willingness, and confirmed it with an oath, that he would rather be shot again than submit to be galvanized a second time. On the second morning, however, the remedy was applied more gently, and on two mornings subsequently. He had a daily discharge from his bowels, and sometimes two. The abdomen had now become natural in size and form. Since then he has had a natural evacuation every morning without aid from either laxative or galvanism. He was dismissed after being fourteen days in hospital.

This is a case a little out of the common run, but not without instruction; and I have, therefore, thought it well to bring the chief circumstances under your notice. It is an excellent illustration of the influence exerted by galvanism over the animal functions. It appears to me to hold out a probability that the same remedy may prove serviceable in restoring the tone of the intestinal muscles, in other forms of inconvenient chronic flatulent distension of the abdomen.—*Month. Journ. Med. Sci.* Sept. 1853.

25. *Pemphigus*.—The *Med. Times and Gaz.* (Feb. 11, 1854) contains a report of eighteen cases of this rather rare disease; and from a consideration of which the reporter draws the following conclusions:—

1. That pemphigus is a disease affecting all periods of life; especially liable to occur between the ages of four and twenty-five.
2. That, like many other skin diseases, it very frequently recurs in those who have once been its subjects.
3. That it usually affects those only of a fair complexion and thin skin. (To this we find no exception among the cases in which note has been made as to the complexion.)
4. That it is rather more common in the male than the female sex (10 to 8).
5. That its severe chronic and relapsing forms are more frequent than the benign and transient.
6. That the parts most liable to be affected are the legs, arms, genitals, abdomen; seldom the face, and very rarely the hairy scalp.
7. That the serum of the bullæ is almost always alkaline. (It was tested in most of the cases, and no exception occurred; the alkalinity was generally very great.)
8. That it is very rarely a symptom of congenital, and perhaps never of acquired syphilis.
9. That it occurs commonly to those of good physical conformation, but is mostly coincident with temporary cachexia.
10. That it is not very markedly influenced by season.
11. That its idiopathic infantile form is a very mild disease, and will usually recover spontaneously.
12. That it is not, as a rule, associated with any particular form of cachexia. (In but two of the above cases were the patients scrofulous; none were known to be rheumatic, or to have had ague; dyspepsia was an attendant in but few.)

13. That the general indications are for the use of tonic regimen and generous diet (Cases 13 and 14); but that these will not suffice for the cure (Cases 3, 4, and 14).

14. That arsenic may be esteemed an almost specific remedy, even in the worst class of cases (Cases 2, 3, 4, 14, &c. &c.). [The careful perusal of the preceding series will, we think, convince the reader that this proposition is not too strongly put. Many of the patients were, when admitted under Mr. Starthin's care, in a truly deplorable condition; the disease had produced extreme irritation, it had lasted for many months or years, it had resisted all sorts of treatment previously. In every instance but two (Cases 3 and 15) the most marked benefit attended the adoption of the arsenical plan.]

15. That arsenic does not merely repress the eruption, but remedies the unknown constitutional cause on which that symptom depends, always very much benefiting the general health of the patient.

16. That arsenic does not prevent the liability to subsequent attacks, but that such attacks are always much less severe than the original one, and tend, if treated by the same remedy, to diminish in intensity on each successive occasion.

17. That the early age of the patient does not in the least forbid resort to the arsenical treatment.

Those acquainted with the literature of this subject will observe, that the above conclusions differ considerably in some respects from the statements to be found in books. The disease itself may probably differ somewhat in London and on the Continent. Gilibert, whose monograph on it is the best extant, appears, for instance, to have met with but three examples of chronic pemphigus, all of them in elderly and enfeebled subjects. A current opinion has accordingly prevailed, that that form is almost peculiar to the aged, while the fact is, as we have above shown, that in London, at any rate, the young are much more frequently its subjects. Cases of relapsing pemphigus, or those in which the disease has extended over many years, do not appear to have attracted much notice from previous writers. Pemphigus is not known to prevail endemically in any part of England; on the contrary, it seems to be about equally scattered over all districts. Two cases came under our notice in York some years ago, and during the last summer we saw a very well-marked case in the Leeds Infirmary, under the care of Mr. Samuel Hey. Mr. Hey informed us that the disease was very rare in Leeds, and that he had, during many years, seen but that one example. There does not appear to be much foundation for the opinion that the disease prevails most in damp localities, and on the banks of rivers. Such a notion is supported by but a small proportion of the above cases. The preceding series probably scarcely presents the benign and chronic forms in their due proportions as to frequency of occurrence, since cases of the former are often of so transient a character that they never come under care at hospitals. With regard to the treatment of the chronic form by arsenic, we have recorded *all* that we have seen. A case has been mentioned to us, however, by a gentleman of very careful observation, in which the arsenic is stated to have quite failed to cure the disease, while it seriously interfered with the patient's (a child) health. We have not obtained particulars as to administration, &c.

The disease known in London as *rupia escharotica*, but described by Dr. Corrigan as a form of infantile pemphigus, has been altogether omitted in the above, and is reserved for a future report. Whatever may be said of its primary stage, its aftercourse has no sort of resemblance to pemphigus.

26. *Ringworm cured by the local application of Sulphurous Acid.*—Dr. JENNER, in a clinical lecture (*Med. Times and Gaz.* Aug. 20, 1853), relates a case of ringworm which he successfully treated by a lotion of sulphurous acid. The lotion is made by passing a stream of sulphurous acid through water until the latter is saturated; and to two ounces of this solution is added six ounces of water. Lint wetted with this is applied to the ringworm, and this is covered with a piece of oil-silk.

27. *The Indian Plague and the Black Death.*—Dr. AUGUST HIRSCH, of Dantzig, communicated a very interesting paper on this subject to the Epidemiological Society (Dec. 5, 1853). The author commenced by stating that, in the whole history of epidemics, there are few epochs more interesting than that of the fourth decennium of our century; for then, within the compass of a few years, we find many of the most important diseases spread epidemically over the globe. These were preceded by agues, which prevailed at the close of the third decennium, and by the influenzas of the years 1831-3. Cholera, which in 1823 had stopped short on reaching the frontier of Europe, overspread with the force of a torrent the Russian empire, and in 1831 entered Germany, where, in the southern parts of the kingdom, it was soon followed by typhoid fever and dysentery. At the same period "sweat fever" appeared in France and Italy, and, for the first time, "typhus cerebralis" was propagated epidemically. In North America cholera, typhus, and yellow fever raged. Turkey, Western Asia, Egypt, and the greater part of North Africa, were ravaged by typhoid fever and Oriental plague; and it was just at that period that a disease of a new and most malignant character broke out in the northwest part of Hindostan. Research among the archives of the Medical Board, however, made it evident that that same disease prevailed some years before in those regions; but the attention given to it had subsided soon after the epidemic ceased. The author considers the disease in question to have been a very decided plague, specifically modified; and that, in order to distinguish it from the Oriental plague, it may justly be denominated the "Indian Plague." The first historical report of the outbreak of the Indian plague dates from the year 1815, in the provinces of Kutch and Guzerat, which in the previous year had suffered from terrible famine. Neither the origin nor the course of the epidemic could be distinctly traced, but there is no doubt that the disease already, in May, 1815, had spread over some parts of Kutch, and the district of Wagoor, that it raged in these territories until the following year, and made great havoc among the inhabitants. At the same time the epidemic appeared in Kattywar, whence it spread to Scinde, and in November it reached Hyderabad, where from sixty to seventy persons daily fell victims to the plague. The epidemic entered the northeastern district of Guzerat, in the beginning of 1817, and abated in the fall of the year. With the rainy season of 1819 it burst forth with new vigour, and overspread the territory which had suffered during the previous year, reached the northern part of Guzerat, and in the east the Zillah of Ahmedabad. With the close of 1821 the epidemic everywhere disappeared; and, but for the remark of Dr. Rankine, that the plague had been observed, in 1823, in the mountainous territory of Kamoon, we have no information of its reappearance until 1836, when it broke out with great malignity in a country far removed from that above mentioned. It was then that the disease for the first time attracted general attention, and gave rise to scientific inquiries, and the adoption of sanitary measures. The Radjpoontana States were the scene of the ravages of this epidemic; and as the first report of the disease came from Pali, in the province of Marwar, it has obtained the name of the Pali plague, although it is anything but certain that the epidemic originated in that place, for it also raged at the same time (July, 1836) in other districts of that province. After having traversed the greater part of Marwar, the disease passed the chain of hills separating the eastern borders of this province from Meigarh, overspread that country, and afterwards the district of Adjmer. Early in 1837, when the epidemic in Marwar had nearly ceased, it appeared in Misscrabad, and declined with the rainy season. At the close of 1837, it again invaded Marwar, especially the town of Pali, and continued till the spring of the following year. Since that time, up to 1850, there was no further report of the prevalence of the malady. It was in this year that a fresh outburst occurred at Ghuravhal and Kamorn, in the Himalayan territory. Dr. Hirsch gives a very minute and graphic description of the mode of invasion, and of the general symptoms of the disease. The disease, although a bubonic plague, was distinguishable from the Oriental plague by an attendant pulmonary affection, with hæmoptœ. The mortality was dreadful; the supposition that it was from 75 to 80 per cent.

of those attacked being by no means exaggerated. In the town of Pali alone, in a population of 20,000 inhabitants, 4,000 persons fell a sacrifice to the plague in the period of seven months. The disease did not appear to be contagious, nor was it at all influenced by season. In the concluding portion of the paper, which indicated much learning, labour, and deep research into the writings of ancient as well as modern authorities, the author adduced strong evidence as to the identity of the Indian plague with the black death of the fourteenth century—that terrible epidemic which fills one of the darkest pages in the history of mankind.—*Med. Times and Gaz.* Dec. 10, 1853.

28. *On the Sanitary Influence of Purulent Discharges.*—Mr. ROGER HARRISON read a paper on this subject before the Medical Society of London (Jan. 14, 1854). He began by apologizing for the rather vague title of his paper, vague inasmuch as his remarks would necessarily (on account of time) permit him only more especially to allude to one of the forms of the salutary influence of purulent discharge, viz: the fistula in ano, which frequently accompanies diseased visceral organs; and, by cases recited, he showed how spontaneous fistula in ano pointed to some more specific manifestations of the laws regulating the production of pus in parts remote from the seat of the disease; as well as that he believed the fistula occasionally preceded the development of pulmonary consumption. In the course of his observations he drew attention to the fact, that, in spite of the recommendations of Sir B. Brodie, to ascertain the state of the person's lungs, &c. before operating in this class of disease, the reverse still obtains, and the operation was yet persisted in at the premature cost of the patient's life. He believed that, in many cases, while the purulent discharge was constantly taking place from the rectum, the true disease was masked, and that, so long as a drain was kept up spontaneously, vital organs were relieved, and life sustained; but that, immediately on the cessation of these habituated discharges, the seeds of phthisical disease, which were but slumbering in inactivity, were forced into existence, and the patient sank under their destructive influence. He used the word spontaneous strictly, inasmuch as he attributed not the same amount of prophylaxis to artificial issues, or setons, &c., although he was aware the latter occasionally were of temporary benefit. The author, in the course of his paper, combated the view taken by Andral and Louis, that fistula in ano and phthisis were not concurrent in more than one of the former, in 800 cases of the latter disease, and did not attach much accuracy to the statements of the French physiologists; and he quoted passages from Pott and Brodie, as well as his own experience, to show that the practice of English surgeons led them to lay down strict rules of treatment in cases of fistula in ano, complicated with pulmonary diseases. He further expressed his belief in the truth of his position by contemplating the physiology of suppuration, as exhibited in the exanthemata of children—(all of which he believed to be blood diseases)—in the glandular abscesses of boyhood. The almost immunity of it at puberty—the recurrence of it again in attained manhood, when nature, ever fruitful and bountiful, makes a contingent charge upon less important parts to carry off effete matter which may have accumulated in the blood. He then proceeded to deduce from the cases read, points as to the physiology of diseased action in the human body, which he considered entirely dependent on individual constitution. It appeared plain to him, that the human frame was obnoxious to two distinct actions going on in the body at one and the same time, and that the disease of which the constitution is most susceptible was not at all times the one in the ascendent, but was often, by an adventitious discharge (such as fistula) kept in the dark, and diseased vitality of the blood thrown off to the relief of internal organs. This position, he maintained, was evidenced by the experiments of Cruveilhier and Blandin, and the writings of Carswell and Pott, of Wilson, and of Cooper. He alluded, in the course of his remarks, to the prevalence of boils and carbuncles as confirmatory of a diseased action in one functional organ set up to relieve the blood of its matières morbi, engendered by atmospheric or other influences. He touched upon the histology of pus and its formation, disagreeing with Dr. Lebert, of

Vaud, who could discover no similarity between concrete pus and tubercle, he believing the difference in size of the two fully accounting for the small difference in shape. He quite coincided with Dupuytren as to the formation of pus being the result of the wrecks of solids, of inflamed organs, and of the elements of the blood, which have entered into new combinations; and concluded his paper by drawing the attention of the Society to the plain plan of practice alone necessary in the treatment of those complicated diseases of tuberculosis and fistula, and decrying all surgical interference in such cases.

Dr. Ogier Ward, in support of the author's opinions, mentioned the particulars of the case of a young lady who had been afflicted with ulceration of the cervical gland, general debility, and threatenings of phthisis. She was directed to visit Hastings; and, so long as she did so, and the glands continued to suppurate, phthisis did not appear; but, having at length much improved in health, and induced a tendency to the healing of the suppurating glands, the patient declined to undertake her annual journey, and died during the next spring. Dr. Ward, as an old pupil of M. Louis, was desirous to reconcile the contrary statements made by that distinguished physician; and the author being assured that all the statements were made in good faith, and thought that he could do so by stating that the great mass of M. Louis's cases occurred before their thirtieth year, whereas fistula usually attacks persons who have passed that period of life. He thought, also, that fistula would be less frequent in France than in England, on account of the prejudice existing in the former country to hard seats.

Mr. Hancock considered that the author's proposition was not a universal one, and cited proofs, that in certain classes of cases the healing of fistulas and abscesses produces unmixed good. He laid down the rule, that whenever the pectoral and general symptoms had preceded the occurrence of fistula, it would be improper to operate; but, when general symptoms follow the abscess, the operation is beneficial. He then referred to the case of a gentleman who was presumed to be in the last stage of phthisis; and, in addition, was afflicted with fistula in ano, who had been advised to submit to the introduction of bougies, with a view to the consolidation of the strictures, but not to permit the division of the sphincter. Mr. Hancock subsequently divided the parts, and found a large purulent cavity existing near to the glutæi muscles, after which the patient became perfectly well. He also referred to numerous cases of abscess caused by scybalæ, or foreign bodies, as bones and coins, which had been cured by operation. Whenever injury to the system results from the operation, he considered it to be due to the irritation set up by the operation, and not to the suppression of the purulent discharge. He criticized the author's term "suppurative abscess," considering that all abscesses are suppurative. He thought it unlikely that the occurrence of gonorrhœa or syphilis would cure consumption.

Mr. Dendy explained that the author had not intended to refer to such abscesses and fistulas as depend upon local causes, but to those only which have essentially a constitutional origin, and he altogether agreed in his opinions. Hippocrates had also observed, that the suppression of purulent discharge is sometimes followed by general disturbance and by insanity; and this he (Mr. Dendy) had seen confirmed again and again at the Infirmary for Children. He had no doubt but that gonorrhœa would be a good prophylactic in the cases referred to, but of course would not advise it as a remedy. He then referred to the present epidemic in Omer Pacha's army, as illustrative of the constitutional origin and emunctory character of collections of purulent matter.

Mr. Harrison stated that he wished it to be understood distinctly, that he had never suggested the propriety of obtaining a gonorrhœa or syphilis, either as prophylactic or curative of phthisis.—*Med. Times and Gaz.* Jan. 21, 1854.

SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

29. *Dislocations of the Ankle below the Astragalus.*—Dr. PAUL BROCA has contributed a memoir on this subject to the third volume of the *Mémoires de la Société de Chirurgie de Paris*. He enters at great length into the history of what he terms *subastragalian* dislocations. The displacements of bone which occur in the tarsal region are so numerous and varied, that M. Broca thinks it necessary to establish subdivisions and a methodical nomenclature. He divides them into three classes; but before proceeding to describe them, he gives an anatomical view of the relations of the astragalus to other bones.

The astragalus may be described as the key of the ingenious mechanism of the ankle; it is the bone which receives directly the weight of the body and transmits it to the other bones of the tarsus. Notwithstanding its small size, it articulates with four different bones, and its numerous articular surfaces take part in all the movements of this complicated region. Three superposed articulations are grouped, as it were, around the astragalus; the first is the tibio-tarsal, which is almost the exclusive seat of flexion and extension; the second is the *subastragalian*, under which term the author comprises, not only the two astragalo-calcanean junctures, but also the astragalo-scaphoid connection. In the movements of this triple articulation, the astragalus, fixed to the bones of the leg, remains immovable, and the rest of the tarsus moves below it, so as to carry the point of the foot inwards or outwards, which constitutes adduction and abduction. The third articulation is the medio-tarsal. The astragalus and the calcaneum, constituting a solid mass, furnish a double articular surface on which the anterior range of the tarsus rests. The movements of flexion and extension are here very obscure, those of adduction and abduction hardly exist; but this articulation is the principal seat of those movements of torsion, which elevate one of the edges of the foot by depressing the other. The three articulations of the ankle may be moved together or singly; and they may therefore be dislocated separately or all at once.

M. Broca divides the dislocations into four groups: 1. The *tibio-tarsal luxations*, of which he does not here treat; 2. The *subastragalian luxations*, in which the astragalus preserves its relations with the bones of the leg, while the rest of the foot is carried in a variable direction; 3. The *medio-tarsal luxations*, in which the posterior range of the tarsus preserves its relation with the leg, while the anterior range is displaced altogether or in part; 4. *The luxations of the astragalus properly so called*, in which this bone, by a complex movement and as a result of extreme violence, is expelled from the cavity which it occupies without the other bones of the foot losing their mutual relations. This classification, says the author, is not an imaginary one, but is founded on real distinctions. The memoir is divided into two parts, one of which treats of subastragalian, and the other of medio-tarsal luxations.

The luxation of the os calcis has very rarely been observed; and, even after examining the recorded cases, M. Broca is induced to doubt the reality of this accident. Of the existence of dislocations below the astragalus there can be no doubt; and the case of Mr. Carmichael is related, in which it is shown that that distinguished surgeon, meeting with an accident on horseback, dislocated the os calcis backwards, the astragalus retaining its position. This kind of dislocation is distinguished from the luxation of the foot backwards, first, by the presence, on the dorsum of the foot and in front of the bones of the leg, of a round projection formed by the head of the astragalus; and secondly, by the absence of the tumour which is formed by the pulley of the astragalus behind the bones of the leg, when the whole of the foot is displaced. The lateral luxations of the subastragalian articulations are less rare than the luxation backwards; and the author has collected nineteen cases of this displacement. The signs of the luxation outwards are the following: the foot is in general carried in an abduction more or less considerable, or it may even take an entirely trans-

verse direction; the external edge of the foot is almost always elevated, and the internal edge rests on the ground. When there is a wound, it is situated on the inner edge of the foot, below or in front of the internal malleolus, and allows the head of the astragalus to project; the tendon of the tibialis posticus is pushed backwards or torn; the posterior tibial artery is distended or torn. The following are the signs of the luxation inwards: the foot is carried in the direction of adduction, its internal edge is more elevated than in the normal condition, which produces, to a certain extent, the form of talipes varus. When there is a wound, it is situated on the outer side of the foot, below or in front of the external malleolus. The tendons of the extensor communis are pushed back over the inner side of the head of the astragalus, which rests in general upon the dorsal surface of the cuboido-scaphoid articulation. The two most essential signs of these luxations are derived from the position of the astragalus in relation to the malleoli, and from the state of the movements of the foot. Whenever the head of the astragalus has preserved its normal relations to the bones of the leg, which fact may be always easily ascertained, the existence of a subastragalian dislocation is certain. The integrity of the tibio-tarsal articulation gives an important functional sign; for the movements of extension and flexion of the ankle, which are abolished in the tibio-tarsal luxations, and in the total luxations of the astragalus, are preserved in the subastragalian luxations.

The indications of treatment must be deduced from the foregoing considerations. When there is no wound, the reduction must be attempted as soon as possible. The extending forces must be applied at once to the dorsum of the foot and the projection of the heel, and must be exerted in a direction parallel to the axis of the leg. Counter-extension is to be made upon the leg, which ought to be flexed upon the thigh, in order to relax the gastrocnemii muscles. If manual force should fail, recourse must be had to pulleys. But it may happen that the reduction is impossible; and in such cases some authors have advised the use of incisions to relieve obstacles; but M. Broca thinks that such treatment is inadvisable. When there is a wound the case is more serious, and some surgeons have recommended amputation; but this can only be adopted in rare cases. The reduction of the luxation must be attempted, but it unfortunately fails more frequently than in luxations uncomplicated with a wound. The division of the soft parts, or the section of certain tendons may facilitate the replacement of the bones; but in spite of this, the luxation often remains irreducible, and it becomes necessary to extract the astragalus. The removal of this bone permits the straightening of the foot; and of eight patients who have undergone the operation, six have recovered. Removal of the astragalus is a less severe operation than amputation of the leg, and it presents the advantage of preserving the functions of the limb.

The latter part of M. Broca's memoir is devoted to the consideration of the *medio-tarsal* luxations, by which term are denoted the displacements which occur between the first and the second row of the tarsal bones; namely, in the articulation called Chopart's. The luxation will be *total* if the scaphoid and the cuboid bone are displaced simultaneously; and *partial* if one only of these bones be luxated. The conclusion at which the author arrives, is that nothing authorizes us to admit the reality of the total medio-tarsal luxation, and that the dislocations of the scaphoid bone which have been described by some surgeons, are really subastragalian luxations. M. Broca criticizes very ably the cases of astragalo-scaphoid luxations described by Boyer, Roux, Astley Cooper, and others, and considers that they are all incorrectly designated, and that by a more accurate diagnosis of these displacements remedial measures might be more successfully employed.—*Assoc. Med. Journ.* Dec. 23, 1853.

30. *Dislocation of the Astragalus.*—Mr. J. TUFNELL communicated to the Surgical Society of Ireland (Dec. 17, 1853) the following case of this serious accident:—

James O'Brien, set. 19, a mason's labourer, residing in Power's Court, a thin, active man, was admitted into Martin Ward of the City of Dublin Hospital, at eleven A. M. on the 24th of August last, having a short time previously de-

scended from a scaffold in the neighbourhood of Stephen's Green. The account which he gave of the accident was this: He said that, finding the platform on which he was standing beginning to yield, he sprang from it into the street with as much force as he was capable of using, intending thereby to jump clear of the timber and brickwork, which he thought would fall upon and crush him. He reached the ground in an upright position, alighting upon a broken brick, which turned with him as his left foot came upon it, and he fell upon his side in excruciating agony. When brought to the hospital, he presented the appearance of a man who had received a severe shock. He was ashy pale, trembling, and cold, feeling sick, and making an occasional effort to vomit.

On examining into the nature of the accident (which, being in the hospital at the time, I did at the moment of his arrival), I found the left foot dislocated inwards from the tibia and fibula, with the astragalus thrown outwards, as represented in the cast upon the table.¹ The particular condition of the parts was the following: Looking at the limb as it rested on the mattress, the calf of the leg lying upon the bed, it presented somewhat the appearance of an aggravated case of talipes varus. The sole of the foot looked obliquely inwards, a deep angular hollow existing in the situation of the inner malleolus, with an acutely prominent projection, all but perforating the integument, and white and glistening from extreme tension, presenting at the outer ankle, caused by the malleolar extremity of the fibula, which was all but thrust through the skin. Two inches anterior to this point, lying upon the outer border of the tarsus, external to the last of the tendons of the extensor communis digitorum muscle, was a hard projecting mass of irregularly ovoid form, immediately beneath the skin, formed by the articulating surface of the luxated astragalus.

The foot itself, from the instep to the toes, bore a natural appearance, as did also the sole when viewed from below. The space beneath the internal malleolus, posterior to the scaphoid bone, which should, in the normal state, be occupied by the neck of the astragalus, presented a raised puffy swelling from effused blood. The internal malleolus was sunk deeply, occupying the position of the body of the astragalus, whilst the external malleolus projected directly outwards. The tibia and fibula were uninjured, there being no fracture of either of these bones.

Reduction was attempted (as soon as time had elapsed for taking a cast, or in about an hour from admission into hospital) and effected in the following manner: The patient was laid upon his back, the pelvis fixed, the thigh bent upon the pelvis, and fixed also, the leg bent upon the thigh, and extension made by assistants from a double clove hitch fastened round the foot, whilst direct pressure was put upon the displaced astragalus with the right hand, the foot itself, at the same time, being rotated outwards with the left. In this way reduction was effected, the bones slipping back into position within a minute, and all deformity disappearing at once.

The leg was placed upon a McIntyre's splint, and cold, by the water battery, applied. He was ordered also the following pill to be taken regularly every fourth hour: Rx. Calomel gr. ii; Pulv. Jacobi ver. gr. i; Pulv. aloes gr. ij; Pulv. opii gr. $\frac{1}{2}$. Ft. pil.

A combination long employed by Dr. Peile in cases of laceration to tendinous structures, and where tetanic affections might be deemed as likely to ensue.

The succeeding day there was effusion into the joint, producing an increase of girth of about one inch. The patient complained, however, of no pain, and said that he felt quite well again. The water dressing was continued until the 30th, when effusion having almost altogether subsided, it was discontinued, and a starch bandage applied. On the 30th of September he was discharged from hospital with the perfect use of his foot, and returned to his daily labour again.

The points for consideration in this case are: 1. What was the exact nature of the injury in its anatomical relations? 2. By what agencies was this dis-

¹ A copy of this cast has been presented to the Museum of the Royal College of Surgeons.

location produced? 3. Had I failed to reduce it, and restore the astragalus to its normal position, what steps would have been the best to pursue?

Firstly, then, as to the particular form of this dislocation. The astragalus had altogether lost its position between the tibia and os calcis, with the exception of the extremity of the head, which, lying on the edge of the scaphoid cavity, appeared to rest with its neck across the os calcis at the calcaneo cuboid articulation. The bone was displaced directly outwards, its attachment to the calcaneum having been ruptured, that portion on its under surface which naturally rested on the os calcis, being placed over the articulation of the calcis with the cuboid bone. The internal malleolus rested in a hollow, sunk down upon the os calcis, occupying the position normally held by the astragalus, whilst the external malleolus was raised up, and kept prominently outwards by the body of this bone wedged beneath it. The external lateral ligament, though tensely stretched, did not appear to have had either of its fasciculi ruptured.

Such being the nature of the accident, the second point for consideration is the immediate cause, or rather manner of its occurrence. This I would suppose to have been the following, viz: That the man, finding the scaffold was giving way, and making a violent effort to jump clear of it, consequently, not only came to the ground (a height of about twenty feet) with his full weight, but superadded to it, with the force of the impetus of the spring—a combined power of no ordinary magnitude. Alighting, then, on a revolving body, such as a rolling brick, fracturing of the limb was prevented by the force acting at an angle, the foot turning inwards at the instant of downward progress being arrested, whilst the *vis a tergo* of the weight of the body still continuing to act, the internal malleolus came to bear like a lever upon the side of the astragalus, pushed upon it laterally, and displaced it off the os calcis, throwing it outwards upon the cuboid, and elevating the fibular malleolus in the manner shown by the cast.

Regarding, then, the foot in this position, my duty of course naturally was to restore it to its normal condition if possible, which in the present instance I was enabled to effect; but failing to do so, what steps is the surgeon to adopt for the permanent welfare of his patient in simple dislocation of the astragalus? This is the third and principal point for consideration.

In forty-six cases of this accident recorded by Mr. Turner, of Manchester, I find six only to have been completely reduced; and of these six, three were accompanied by fracture, one of the tibia alone, second of the tibia and fibula, and the third of the os calcis.

In two cases the bone was partially reduced; in ten, it was suffered to remain in its new situation; in six, it was partially excised; in eighteen, it was wholly excised; and, in four, the limb itself was removed by amputation. Of these forty-six cases, sixteen were simple dislocations, and thirty were complicated or compound. It is with the first only that we have now to deal.

Of these sixteen cases, then, three were reduced, the patients regaining useful feet. In eight instances the astragalus was left undisturbed in its new position. Five of these cases did well, but the form of luxation in each was the same, namely, that directly backwards, "the astragalus, resting in the interval between the posterior part of the tibia and the tendo-Achillis, a spot sufficiently spacious to give occupancy to the dislocated bone without much removal of the tendon of the heel, and without direct pressure on the integuments of this region." In the other three cases, where the bone was suffered to remain, and where the direction of the dislocated bone was either *forwards, forwards* and *outwards*, or *forwards* and *inwards*, there was a far different result. In the first, there was a permanent deformity; in the second, ankylosis of the joint; and, in the third, permanent deformity and lameness.

In the single case of *partial excision*, there was a useful foot; and in the two cases of *complete excision*, there was the same result. The remaining two cases were submitted to amputation. We have left, then, for consideration, out of these sixteen cases of simple dislocation (after deducting the three reduced and the five luxated backwards as not appertaining to the form of dislocation now before us), eight cases from which to draw our conclusions as to the mode

of treatment to be adopted, namely, whether to leave the astragalus in its new situation, or to excise it partially or *in toto*.

Five cases are to be included under the first head, because the two which became subjects for amputation were cases of this kind, where reduction had been attempted and failed, and where the bone had been left to nature. Now, of these five, we find ankylosis of the joint in one, permanent deformity and lameness in two, and loss of limb in the remainder. This does not argue favourably for allowing the bone to remain. Then as to excision partially or altogether: We have three cases, *one partial*, performed at the time of the accident, and *two complete*, the bone being removed on the thirty-third day in one instance, at the end of ten weeks in the other, sloughing having taken place in each. These three cases recovered with useful feet, still, in the two latter, not until the luxated bone had been removed. From the results of these cases, then, it would appear that in simple luxation of the astragalus forwards, forwards and inwards, or forwards and outwards; and, in fact, in all situations, excepting that directly backwards, if the surgeon should be foiled in reduction, he should at once remove the bone; and I would go even further, in the instance of a labouring man, and say, remove the foot by Syme's operation, leaving him Nature's pad, the integument of the heel to stump upon—a far more serviceable termination to his leg than an ankylosed and weighty foot. This I have no hesitation whatever in recommending. I am an advocate for conservative surgery, so far as the objects to be derived from its are *real gains and undoubted advantages* to the individual, such, for instance, as from excision of the elbow-joint, or partial amputation of the hand, whereby a member, though maimed, still is left more efficient than any that art and ingenuity could supply. This is right, this is what we should use our every effort to secure. But I say conservative surgery may be overdone, as I feel convinced it often is in the case here before us. I am speaking now from the experience of three cases that have come under my own observation, in each of which the bone was removed at different periods after the receipt of the injury, and in each of which the individual gained what would, I am convinced, be reported as a *useful foot*. This is the point to come to. The question for consideration is the power of progression that remains, the capability of taking exercise, and that exercise which a labouring man must do to enable him to earn his bread. These three cases would, I have no doubt, have been entered in a statistical report as recoveries with *useful feet*, but in neither of these three cases can the individual earn his bread.

One of these was a patient of my own, from whom I removed the astragalus (or rather, I should say, the greater portion of it, for it was fractured obliquely across, as is so frequently the case) in 1850. He writes to me now (in 1853) in answer to my question as to how he is going on, to say: "I can bear considerable pressure on my foot, and it seems to increase in strength, but I could, *I think, get on better if I had a boot that would support me from the knee*. I cannot yet do any work." This man tells the truth, and explains the matter in a word. *He has a foot that he can use, but he has not a useful foot.* He has a foot that for a clerk in an office, a solicitor, a commissioner, a man of private fortune, &c. &c., would do well enough, and I have no doubt be regarded by each as a very satisfactory cure, but he has not the foot for hard work. Could he have had this? I believe he could. Had I, in 1850, dissected out his entire foot, nipped off the malleoli, and brought up the pad of heel from below, instead of taking out the dislocated astragalus alone, he would not now, in 1853, be suggesting and of course wishing for *a support from the knee*. This question of conservative surgery, too, is to be looked at in another light, viz: its power of diminishing the risk of loss of life. This is, certainly, the all to be regarded point—to it every man must bow, but that argument is not in its favour here. Who that has had experience of the two cases under consideration, namely, the after treatment of a case of open ankle-joint from which the astragalus has either been removed by excision or left to come away, and of Syme's operation performed *for accident on healthy structure*, will make a comparison as to the risk to life between the two. Look at the inflammation, suppuration, sloughing, abscesses, and perhaps diffuse inflammation; the water-dressing, poultices,

incisions, splints, and swinging-eradles, with three months or more in bed; the opiates, tonics, bark and acid, wine and porter, and change of air, connected with the one, and the two sutures, strap of plaster, light dressing, and slight confinement required for the other. Some will say their experience of the latter does not lead them to regard it with such favour, that cases have occurred which induce them to modify the opinion they once formed. But, recollect, those amputations of the foot were not for *accident*, they were operations for *disease*. This is a different case altogether. Here there are infiltrated tissues, sinuses, ulcerated cartilages, perhaps unhealthy bone, a state of things far different from that of a clean cut through healthy parts; a state of things produced in, if not originated by, a strumous constitution, and which must be taken into account as influencing the one, and having no connection whatever with the other. This leads me to speak as strongly as I do, and I feel convinced that if removal of the foot by Syme's operation be adopted in our hospitals (upon the class of persons who become the subjects of this accident in cases of irreducible dislocation of the astragalus, either simple or compound, excepting always luxation directly backwards), a far better set of extremities in the aggregate will be given to the sufferers than they now have, and that they will, in very many instances, be enabled to labour in ways that they cannot do now.

There is, however, one modification that I would make, and that is, namely, in commencing the operation, I would do so in the form most suited in each particular instance for the *mere removal* of the bone; so that if, on dividing the integuments directly over it, I found the astragalus so far detached that I could free it, and bring it *easily* away, and close the joint, I would do so, giving the man the chance; but if I found it firmly attached, both by its connecting ligaments and surrounding textures, having, as it were, to be dug out of the joint, I would then proceed at once to disarticulate the foot.—*Dublin Medical Press*, Dec. 28, 1853.

31. *Scrofulous Caries of the Left Astragalus; Excision: Cure, with the Formation of a Fresh Joint.*—Mr. S. F. STATHAM communicated the following case to the Royal Medical and Chirurgical Society, Jan. 24, 1854:—

Henry C—, aged five, of strumous habit, and subject to weakness of the left ankle from birth, became affected at Christmas, 1851, with a swelling below and on the outer side of the left ankle, which was blistered. Since May he has been under hospital treatment; latterly, there have been formations of matter. The integument, after a few days' rest, appeared discoloured only over the situation of the astragalus, which bone could be readily reached by the probe. The patient being under the influence of chloroform, August 27, 1852, Mr. Statham, assisted by Messrs. Marshall and Clover, proceeded to remove the diseased bone. He made one incision, three inches long, parallel to the outer border of the extensor tendons of the toes, and then another to fall into the middle of this from the outer side of the foot. Having detected carious disease of the astragalus by the finger, he divided the neck of the bone with a saw, and readily removed it from the calcaneum. A proper splint was applied, and the case terminated favourably. The author concluded with some remarks upon the feasibility of the operation, which he believed had never been performed for a similar affection.

Mr. Solly said that the Society were much indebted to Mr. Statham for his very interesting case. From his (Mr. Solly's) experience, however, of similar cases which had come under his care in St. Thomas's Hospital, he did not think it necessary that the whole of the astragalus should have been removed. It appeared in Mr. Statham's case that the head of the astragalus was healthy, and that the disease did not necessarily involve the ankle-joint. He thought, therefore, it would have only been necessary to gouge out the diseased portion of the bone. He had adopted this mode of proceeding in a boy lately under his care in the hospital, with the best success. The boy's health, which had been much shattered previous to the operation, soon improved, and he got rapidly well. In this mode of proceeding, too, so large an incision was not

necessary, as in Mr. Statham's operation, by which several important tendons were probably divided.

Mr. Fergusson, whilst admitting that we were indebted to Mr. Statham for his case, could not agree with all that had been stated in the paper. He thought the case another step in advance to make surgery as perfect as it was in human power to do. This and similar cases drew attention to that style of conservative surgery by which the removal of a merely local disease left the affected member as nearly as possible complete. In Mr. Statham's case, considering all things, the foot, judging from the cast sent round, was wonderfully perfect. At the same time he had been astonished to hear that, if this operation had not been carried out, it was intended to have amputated below the knee. Such a proceeding, in his judgment, was not in accordance with the principles of conservative surgery, unless, indeed, there was more disease in this case than had been stated. It was of the greatest importance that views respecting conservative surgery should be placed before the profession; for no doubt very many cases of amputation had taken place, in which the simple removal of the diseased portion of bone would have been sufficient to have effected a cure. He agreed, as far as he understood, with the views which had been advanced by Mr. Solly, viz. to remove, in all practicable cases, the portion of diseased bone, instead of the entire bone itself. In Mr. Statham's case the whole of the astragalus was removed, and in this particular instance he (Mr. Fergusson) was not disposed to find fault with the proceeding, as the bone was so much diseased; but in many cases the entire bone had been taken away unnecessarily. The removal of a portion, or even the interior of a bone, so as to leave a mere shell, was a much better proceeding, and caused little deformity. He had a strong impression upon his mind, as the result of his experience, with respect to this partial removal of bones of the tarsus. He had rarely met with the os calcis so diseased as to require its entire removal.

Mr. Solly was sorry if he had not made himself sufficiently understood when he rose before, but Mr. Fergusson had fully supplied any omissions which he might have made. He (Mr. Solly) was desirous not to enlarge upon this subject, as his views on the matter were already in print, and could be referred to. In one instance he had operated on both feet, removing portions of the os calcis, astragalus, fibula, and tibia, and the patient got quite well.

Mr. Statham observed, that only the tendons of the peroneus tertius and flexor brevis of the fifth toe were divided, both of little importance. This case appeared to him similar to those of other joints in surgery, as the elbow, for instance, where, after an injury, two courses were open to the surgeon—either to excise the injured parts entirely, or to content one's self with extracting the separated fragments. The first plan gives a new joint in the course of some months; the last, a stiff one in the course of a year or more. Now this may be strictly applied to serofulous caries, as with cancer, we may gouge, or cut out piece after piece, yet, unless a sufficient quantity be removed, such interruptions occur in the course of the after-treatment, as seriously to endanger the new joint. Without speaking of other parts, it is certainly advisable, when meddling with a serofulous joint, and wishing to make a new one, that all the parts diseased should be removed. In connection with these remarks must be mentioned the very common practice of publishing the accounts of cases before the result is known. Nothing can be more uncertain than the after-occurrences to which the cases of gouging are liable, so long as any fistula remains behind. In the present case the cure was perfect, for he had happened to see the patient that day, the mother being recommended to produce the patient quarterly, that his health may be attended to.

Mr. Charles Hawkins believed that in cases of the kind detailed by Mr. Statham, the disease affected the body of the bone, and involved a great portion of it. He, therefore, thought we should be more conservative in our surgery, by removing the whole of the bone, for we never could be satisfied if all of the diseased portion were removed by gouging, which operation we might have to resort to again and again. He mentioned a case in which, after gouging, a fistulous opening into the joint was left, making the limb useless. He objected

to half operations, which left sufficient disease to do mischief, and, therefore, could not be called "conservative surgery."

Dr. Balfour thought that we had heard too little of the constitutional treatment in these cases, and too much of the use of the gouge. He mentioned a case of diseased bone, in which, after laying open a sinus, and giving a boy cod-liver oil, a very good ankle-joint had been left.

Mr. Fergusson remarked that of course no prudent surgeon would resort to the knife until all constitutional means had failed; it was to cases in which constitutional remedies failed that his observation applied. Mr. Hawkins's remarks did not shake the opinions which he (Mr. Fergusson) had advanced. His remarks had reference to local disease of the bone. He did not dispute the propriety of removing all the bone in this case, and in many others, but it was his conviction that the proper proceeding in the majority of cases was to remove only the diseased portion. He had seen hundreds of cases in which a small portion of the bone only was diseased, the remaining parts being quite healthy. As soon as the diseased portion was removed the healing process was remarkably rapid. There was danger of interfering with healthy bone, but the removal of the carious portion of the bone was attended usually by the best results. The subject altogether was too extensive to go fully into on that occasion, but it might be stated generally, as a rule, that it was better to remove only the diseased portion of bone in these cases. In some instances it might be necessary to remove all the bone.—*Lancet*, Feb. 4, 1854.

32. *On the incomplete Luxation of the Tibia forward.*—The third volume of the *Mémoires de la Société de Chirurgie de Paris* contains a paper on this subject by M. DÉSORMEAUX, illustrated by a case which came under his notice at the hospital Bon Secours. The patient became accidentally entangled in some machinery, by which accident direct violence was applied to the region of the knee, and a partial dislocation of the knee forward was the result. The luxation was reduced, but the patient subsequently died of consecutive disease. On examining the knee-joint, it was found that the articular capsule was uninjured, but it contained a little serosity mixed with blood; the ligamentum patellæ, the lateral ligaments, and the posterior and semilunar ligaments were healthy, and the crucial ligaments were infiltrated with blood. M. Désormeaux considers the principal symptom of this luxation to be the projection of the tibia forward, permitting the anterior part of the glenoid cavities of this bone to be distinguished by the touch; the projection of the condyles of the femur in the popliteal space, and the consequent increase of the antero-posterior diameter of the articulation, the absence of real shortening, and the position of the patella, the anterior surface of which looks forward and upwards, and presents remarkable depressions at its sides. The best method of reduction consists in the flexion of the limb, combined with a slight extension.—*Assoc. Med. Journ.* Dec. 23, 1853.

33. *Treatment of Dislocation complicated with Fracture.*—In September, 1851, a man, aged 68 years, came to M. RICHET with a dislocation of the upper extremity of the humerus, with fracture of the anatomical neck of that bone. He was then in a state of complete intoxication, but the next morning he was able to communicate the following details: He was descending a narrow staircase, when his foot suddenly tripped and he fell backwards. In this fall, the left shoulder struck the angle of one of the steps; and, when the man was lifted up, he could no longer use his arm, which was perfectly serviceable before the accident. The man was very thin, and his limbs were easily examined. In front of, and rather lower than the left acromion, there was an evident angular projection, at the summit of which was a deep ecchymosis, having a transverse direction; this was the point in which the patient said he had fallen. Behind and below the acromion was a visible depression, into which the index finger penetrated with facility, proving that the head of the humerus had passed out of the glenoid cavity. Above this depression, the acromion formed a well-marked projection, particularly when compared with the corresponding part of the opposite side. On carrying the hand into the

axilla, it first encountered a hard cord, stretched from the posterior border of the axillary cavity to the anterior, a little obliquely from below upwards and from behind forwards; this consisted of the flattened tendon of the latissimus dorsi. More posteriorly and internally, another thicker projection was observed. By carrying the hand to the summit of the axillary hollow, a tumour was found of an irregularly round shape, movable, and apparently isolated, for it could be moved in all directions. Suspecting that this tumour was merely the head of the humerus thrown out of its cavity, M. Richet rotated the lower end of the bone, but the tumour was not at all moved, nor was any crepitation perceived. These rotatory movements produced very great pain; and, on applying the hand to the angular projection above described at the anterior extremity of the shoulder, it was found to be affected by the rotatory movements impressed upon the inferior extremity of the humerus; this led M. Richet to ascertain that it was formed by the upper end of a fragment belonging to the body of the humerus. It was irregular, with rather well-marked dentations, some of which were entangled with the fibres of the deltoid. The movements of abduction and elevation were impossible; and flexion of the forearm upon the arm was effected with great difficulty.

The case was, therefore, evidently one of fracture of the surgical neck of the humerus, complicated with dislocation of the head of the bone. As the pain in all the muscles surrounding the shoulder-joint produced contractions, which prevented the apposition of the two fragments, the patient was put under the influence of chloroform, to obtain, if possible, a complete resolution of this muscular action, and to enable the examination to be concluded. In less than two minutes, the patient became quite insensible, with complete relaxation of the muscles. It was then easily ascertained—1st, that the head of the humerus was dislocated into the summit of the axillary hollow, where it formed an irregularly rounded tumour, very movable, and detached from the rest of the bone; 2d, that the upper end of the lower fragment of the humerus was displaced forwards under the deltoid; 3d, that there was another little fragment completely detached, but entangled in the fibres of the deltoid, and which had not previously been detected, in consequence of the contraction of this muscle.

After the patient was restored to consciousness, the lower portion of the bone was easily disengaged from the fibres of the deltoid, and crepitation was then perceived.

On the 12th of September, the patient was again put under the influence of chloroform. Taking advantage of the complete relaxation of the muscles, which ensued in a minute and a few seconds, M. Richet seized the man's arm, and, bringing it forwards and downwards, he disengaged very easily the upper extremity of the lower fragment from the deltoid fibres. The arm was then intrusted to an assistant, and M. Richet grasped the convexity of the shoulder with both his hands, the two thumbs resting on the acromial projection, while, with the four fingers of each hand directed towards the summit of the axilla, he endeavoured, by careful efforts, to bring back the head from within outwards towards the glenoid cavity. Notwithstanding the slight hold afforded by the fragment, it was felt to be yielding by degrees, and the reduction was soon completed, without any noise, and rather insensibly than suddenly. After that time, the two fragments remained in contact, and the regular rotundity of the shoulder was completely restored.

The next morning an apparatus was fitted, consisting of an axillary pad made of charpie, covered with a compress, carried up to the summit of the axilla, in order to prevent any fresh displacement in this part. The forearm was bent upon the arm at an acute angle, and the hand placed upon the sound shoulder, so that, the lower extremity of the humerus being carried forwards, the upper extremity of the fragment was carried backwards, in an opposite direction to that which it formerly took. The contact then appearing to be as perfect and secure as possible, the parts were fixed in this position by means of a bandage which left uncovered the convexity of the exposed shoulder, in order to allow the observation of any changes which might subsequently occur in this region.

On the 13th of September, the patient had slept well, and the shape of the shoulder was perfectly natural. On feeling the part, a rather considerable effusion of blood was found to have taken place into the articulation, and the splinter formerly mentioned was now perfectly appreciable at the anterior and external part of the shoulder.

On September 4, and following days, no new symptom occurred. The patient ate well and slept well, but he complained of numbness in the arm and forearm.

On October 4, the effusion of blood had disappeared. The bandage was removed, when it was ascertained that the reunion of the fragments was effected, and a simple sling was applied, which allowed of slight movements, sufficient to prevent ankylosis, but not sufficient to break the callus, or even to retard its formation.

On October 30, the bandages were removed, and the patient had a bath. The callus was perfectly solid, but the movements in the scapulo-humeral articulation were almost annihilated; and it was, in fact, observed that the movements of the arm were effected by the sliding of the scapula upon the thorax. The patient was, however, recommended to exercise the arm as much as possible.

On November 24, the patient was still in the hospital, and it was found that there was a very well marked degree of mobility in the scapulo-humeral articulations, which gave hopes of still further power of motion. The splinter formerly described remained still detached and movable, but, every time it was disturbed, the patient experienced severe pain. The numbness of the arm and forearm had almost disappeared.

On June 27, of the next year, the patient came to the hospital for another complaint. It was then ascertained that he had very little difficulty in moving his shoulder. He lifted his arm easily to his head, and executed all the other movements which he was directed to perform, without experiencing the slightest pain. The splinter had disappeared, or at least was hidden among the deltoid fibres, which had become developed by exercise to such a degree that the rotundity of the shoulder, compared with that of the opposite side, was perfectly normal.

M. Richet, in commenting on this case, comes to the following conclusions:—

1. That, contrary to the opinion universally adopted, dislocations of the humerus and of the femur, complicated with fracture of the extremity of the dislocated bone, may and ought to be reduced immediately; and the fracture, thus brought back to a simple state, should be treated like other solutions of continuity of the bone.

2. That, to perform this reduction, the patient should be subjected to the most complete anaesthesia, in order that the muscular action may be entirely annihilated; and that, of all anaesthetic agents, chloroform appears hitherto to be the best.

3. That clinical experience, reasoning, and experiments upon the dead body, agree in demonstrating that, as the muscular power is the principal, and, in fact, the only obstacle to the replacement of the bone, so, when this is annihilated, it is not necessary to employ a lever of greater or less length to apply to it forces of extension, but that it is then sufficient to exercise directly upon the dislocated extremity pressure which may push back the head of the bone into the articular cavity.

4. That, in the very rare cases in which the fibrous tissues form an obstacle to the replacement of the bone in its cavity, it is to this method of pushing back the head that we must have recourse by preference, as being more rational and more efficient than extension.

5. That, if the proceeding by extension is to remain as a general method in the treatment of dislocations without fracture, yet we must admit that the proceeding by pushing back will be always, even in such cases, a powerful auxiliary; and, further, that alone it is applicable, to the exclusion of extension, in the treatment of dislocations, complicated with fracture of the dislocated bone.

—*Assoc. Med. Journ.* Dec. 9, from *Mémoires de la Société de Chirurgie de Paris*, tom. iii. fasc. 4.

34. *On the Formation of Inner Callus.*—Dr. ULRICH HILTY, in his inaugural dissertation, has described some experiments made with the view of investigating the formation of callus within the medullary canal, in the union of fractured bones. For this purpose, he inserted pegs of ivory and silver wire into the tibia in cats and rabbits; and in every case he found the foreign body surrounded by a deposit of inner callus, distinguishable from the surrounding bone by its white colour. When placed under the microscope, it exhibited numerous vascular canals, communicating with those of the old bone; while, in the bony mass itself, there existed a turbid hyaline substance, and round elongated bone corpuscles, with long and tortuous radiating canaliculi.

Dr. Hilty found the deposition of the inner callus to begin thus: Immediately after the irritation of the bony substance by the foreign body, the medulla became redder and firmer, and its vessels were distended with blood. Shortly thereafter, at the injured part, there was deposited, between the inner surface of the bone and the medulla, a greater or less amount of exudation, at first of a scrous character, but afterwards of a gelatinous consistence. This gradually increased, until it either surrounded or bridged across the peg. The exudation was conical in shape—thickest near the peg, and tapering away towards the periphery. It began first to solidify at the periphery—some traces of cartilage being discoverable there in two or three days—and the smooth bony surface lying beneath became somewhat roughened and uneven. The cartilaginous formation afterwards gradually extended to the other parts of the exudation, and this process was generally completed by the fourth or sixth day. During this time, and in the same manner, ossification was also progressing, often with such rapidity that, after eight or ten days, the exudation was surrounded by a bony capsule, while periosteal callus, thrown out synchronously with this, was commonly, in the same space of time, merely cartilaginous in its structure.

This author describes with great minuteness the histological changes observed during these processes. These we cannot notice at any length, from our limited space. The exudation was at first a yellowish homogeneous mass, in which were seen fat-cells, altered blood-corpuscles, and some elementary fibres of connective tissue. Nucleated cartilage cells were formed in this, appearing first as dark spots or clear vesicles which became surrounded with an investing membrane. Calcareous granules were gradually deposited in these till ossification was complete.

From these investigations, as well as from his own experience in disease of bone, Prof. Meyer, of Zurich, deduces the following results: He considers—

1. That, in the union of fractured bones, callus is thrown out simultaneously by the endosteum and the periosteum, but that the inner callus is of little importance as regards the healing process.

2. That what he terms “sclerosis” of bone—*i. e.* an obliteration of the medullary canal by hard osseous structure—is caused by hyperæmia of the endosteum, just as exostosis results from this condition of the periosteum.

3. That the thickening of the cancelli, occurring when the areolar texture of the articular extremities of bones is exposed, is caused by an increased osseous deposition, excited by the mechanical irritation of the endosteum.

4. That in this manner, also, are formed the compact lamellæ, lining the *foreæ glandulares*, formed in the cranial bones by the compression of the pacchionian bodies.

5. That, in the case of malignant periosteal growths compressing the interior of the bones, the hardening of the contiguous osseous structure, and the obliteration of the medullary canal by bony stroma, are caused by the implication of the endosteum, and are analogous to what occurs when the periosteum is affected by bony tumours growing outwards.

6. That the osseous capsule which envelops abscesses, occurring in the cancellous texture, is analogous to the external bone growth (*osteophylbildung*), so common in the vicinity of ulcers. He observes that it frequently happens to healthy bones that their structure becomes absorbed externally, while fresh osseous formation is actively going on in their centres; just as, in the process of their development, absorption occurs internally—to form the medullary canal—while new bone is being simultaneously deposited on their exterior.

This fact he considers explanatory of the condition of many flat bones—as those of the cranium, or the scapula, and the ileum—which, in their perfect condition, contain more or less spongy substance, and which, in old age, become often thin as paper, while, at the same time, they consist wholly of compact osseous tissue.—*Monthly Journ. Med. Sci.* Jan. 1854, from *Henle und Pfeiffer's Zeitschrift*, Bd. iii. heft 2.

35. *Wire Gauze for Bandages, Cradles, and Splints.*—Specimens of this article, invented by Mr. STARTIN, were exhibited to the Medical Society of London (Jan. 28, 1854). The material employed is flattened copper or iron wire, and costs about 1s. 4d. per square foot; and, if the expense were not an object, the materials might be plated. The usual mode of application is first to obtain a pattern for the splint by means of cartridge-paper, and then carefully to cut the sheet of gauze to the pattern. The splint further requires that the edges should be cut transversely at intervals, and the free edges covered with thin lead or adhesive plaster. Folds of linen, wet with water, are placed upon the limb underneath the splint, and the whole apparatus is kept in position by rollers or tapes. The merits of the invention were said to be those of lightness, cheapness, coolness, and affording the opportunity of readily applying lotions without disturbing the bandages. It was recommended in fractures, resections of the joints, and, indeed, in almost all instances in which cradles and splints are ordinarily employed.—*Med. Times and Gaz.* Feb. 4, 1854.

36. *New Operation on the Foot.*—Dr. GAY exhibited to the Medical Society of London (Jan. 14, 1854) drawings, and gave the particulars, of a case in which he had performed resection of the foot on a new plan. He entered into some details as to the several forms in which resection had hitherto been practised, and then considered the propriety of leaving the great toe entire when the case called for the removal of all the other metatarsal and phalangeal bones. He stated that the objections hitherto urged against such a procedure were—first, the inconvenience which would attend the projecting part; and, secondly, the want of sufficient attachment to the internal cuneiform bone, to render the toe of any service in progression. He was now, however, of opinion that, if the middle cuneiform bone be also allowed to remain, the attachment will be consolidated, and the whole toe made serviceable. His patient was aged 22 when operated upon in August last; and now (after five months) is able to walk with ease, and is obtaining yet greater facility in progression. Mr. Gay especially referred to two circumstances as worthy of note: 1. That the toe becomes curved outwards, and thus receives the pressure at about the point where the ball of the little toe formerly received it. This facilitates progression. 2. The absence of the other toes seems to be compensated for by an increasing muscular and bony development of this, the remaining toe; and it is probable that the great toe will acquire far more than its normal size and power.—*Ibid.*

37. *Treatment of Aneurism and other Vascular Tumours by the Injection of a Solution of Perchloride of Iron.*—During the present year, the attention of French surgeons has been closely directed to a new method of treating aneurisms, viz: that of producing coagulation of the blood in the aneurism by injecting a few drops of a solution of perchloride of iron into the sac. The merit of first bringing this method prominently under notice is due to the late M. PRAVAZ, of Lyons. We propose to give an abstract of what has been said and written for and against this method.

History.—In a letter to M. Marjolin, published in *L'Union Médicale* for May 12, M. Pravaz gives the history of the treatment.

The author states that, in the year 1828, he commenced experiments on the means of preventing the absorption of poisons. Cauterization of the poisoned wounds by galvanism appeared to succeed best; this he first tried in cases of bites by vipers, and by Indian snakes, and of mad dogs. In his experiments, he observed the readiness with which blood coagulated under the action of galvanism; but it did not occur to him to apply this principle to the treatment of aneurism, until M. Velpeau had stated that a coagulum was produced by in-

troducing a needle half-way into a vessel, and there leaving it. This led M. Pravaz, by a series of experiments, to the conviction that galvano-puncture was likely to be a very successful treatment; and he communicated his idea, in 1831, to several surgeons. For many years this method remained in abeyance, being merely referred to in works on medicine and surgery; and it was not until 1845 that M. Pétrequin successfully employed galvano-puncture in aneurismal tumour in the course of the temporal artery. M. Pravaz observed with interest the applications of galvano-puncture which were made since 1845 in most countries of Europe. He was led to believe that this method, from the care which it required, from the frequent imperfection of the apparatus, and, perhaps, from a certain idiosyncrasy in the blood, often failed.

In 1851, he first attempted to produce coagulation by employing voltaic electricity as a means of conveying through the tissues one of the elements of a saline solution placed on the part. This plan had been partly proposed by Strambio in 1847. M. Pravaz thus describes his discovery of the treatment by injection of perchloride of iron:—

"In the course of the experiments which I have related, the object of which was either to abolish acupuncture while galvanism was retained, or to reduce the operation to the introduction of a single needle, I observed that perchloride of iron instantaneously caused a solution of albumen to coagulate in mass. Considering, at the same time, that the preparations of iron are generally harmless, when administered in a moderate dose, I was led to reflect whether, in place of endeavouring to suppress acupuncture in the treatment of aneurism, it would not be better to renounce electricity, and retain puncture as a means of introducing the coagulating material into the sac. I thought to realize that idea by means of the trocar, which is used in the exploration of tumours. Those, however, which are in common use are not sufficiently delicate; and I waited the opportunity of a visit to Paris to have some made fit for the end which I proposed. M. Charrière perfectly fulfilled my wishes in this respect. I obtained, also, a small syringe, the piston of which was moved by means of a screw, so that the injection was performed steadily and continuously, and could be regulated at the will of the operator.

"On my return to Lyons, I attempted, with the assistance of my son, to produce coagulation of the blood in the carotid artery of a rabbit; but the artery was too delicate to allow the trocar to be easily introduced without transfixing it. . . . I had proposed to recommend my experiments on larger animals, when a severe illness interrupted my researches. They would probably have been altogether suspended, if the stay of M. Lallemand in my house had not both restored me to health and reanimated my scientific ardour."

MM. Pravaz and Lallemand then performed experiments in conjunction, in which M. Pétrequin participated for a time.

"The limits as to quantity which M. Lallemand and myself have determined, cannot be passed without producing symptoms of intoxication, and dissolution of the clot; but the injection of an excessive quantity may give rise to severe inflammation of the sac, consecutive ulceration, and expulsion of the coagulum.

" . . . M. Lallemand and I have estimated the quantity required to coagulate each centilitre (about one-fourth of an ounce) of blood as being three drops. I would even go below this limit; but, in order to furnish a sure guide to the operator, the degree of concentration of the solution of perchloride of iron must be observed."

In an article published in the *Gazette Médicale* for October 1, M. Pétrequin, of Lyons, claims to share equally with M. Pravaz the merit of originating this mode of treatment. He states that, in 1845, he proposed to himself to search for an agent possessing the properties of fluidity, smallness of volume, capability of producing coagulation without carbonizing the blood, non-liability to produce excessive irritation, and capability of being absorbed without danger. He also says that, in 1852, M. Pravaz proposed to him to perform a series of experiments with perchloride of iron. They performed some experiments in conjunction; but, subsequently, M. Pétrequin continued his researches independently; experimenting, however, with perchloride of iron and manganese.

He does not, however, appear to have actually employed this agent in the treatment of aneurism.

The mode of operation is thus described by M. Lallemand: "The method proposed by M. Pravaz consists in coagulating the blood in the vessels by the injection of a few drops of a solution of perchloride of iron at its maximum of concentration. The injection is effected by means of a very delicate trocar, which must be introduced very obliquely through the walls of the artery by a kind of rotatory movement. To this trocar is fitted a syringe, of which the piston moves by means of a screw, so that the liquid may be injected steadily, and the quantity accurately measured. At the time of operating, the flow of blood in the vessel must be arrested." In the treatment of aneurism, the solution must be introduced into the aneurismal sac, and the artery must be compressed for four or five minutes.

Cases.—At the meeting of the Academy of Medicine on the 8th of November, M. Malgaigne read a paper on the treatment of aneurism according to the method of M. Pravaz. The article is published at length in the *Union Médicale* for November 10. The author passed in review the history of the operation from the reading of a letter from M. Lallemand before the Academy of Sciences up to the present time. He referred to the experiments of Lallemand, Giraldès, and Debout, and to the cases of MM. Raoult Deslongchamps, Niepce, Serre, Velpau, Lenoir, Soulé, Alquié, Defour, Jobert, and himself.

We have collected the reports of several cases from the journals in which they were reported, and shall avail ourselves of M. Malgaigne's essay in the history of others. The whole of the cases, from No. I. to XI. inclusive, will be found in M. Malgaigne's paper.

CASE I.—At the meeting of the Surgical Society of Paris on March 30, M. Larrey related a case communicated to him by M. Raoult-Deslongchamps. The disease was aneurism of the supraorbital artery, of the size of a small pigeon's-egg. It could be emptied by pressure. M. Deslongchamps injected a few drops of the concentrated solution of the perchloride, but at first failed, in consequence of the formation of a clot at the end of the canula. The next day, ten or twelve more drops were injected; and, in three minutes, the tumour became hard, and the pulsations disappeared. The swelling after this continued to diminish, until, at the end of a month, there was no trace of the aneurism beyond a little redness and slight thickening of the skin. (Abridged from *L'Union Médicale*, April 9, 1853.)

At a meeting of the Academy of Surgery on May 4, M. Larrey read a letter from M. Deslongchamps, in which the subsequent history of his case was reported.

On March 13, in the situation of the aneurism, the skin was a little more red and elevated than on the opposite side. There was also some thickening and induration. On April 15, M. Deslongchamps saw the man, who told him that he had been seized with a catarrh (from exposure to cold) on the 7th, and that he had had violent fits of coughing, which, in two or three days, caused the situation of the tumour to become more red and swollen. He also felt pulsation in it, which increased for a day or two. The cough then diminishing, the swelling and pulsation became less after the patient had worked some hours at his forge (which he had not ceased to do since discharged by M. Deslongchamps). On April 15, M. Deslongchamps sent for him, to ascertain the results of the operation. He then found that, in the situation of, or rather a little to the outside of, the primary affection, there was a flattened tumour, with ill-defined edges, and very red, but not uniformly so. On applying the fingers, feeble pulsations were felt, but only on the lower half.

M. Deslongchamps did not think that this was a return of the disease, but merely a result of the enlargement of the collateral arteries, which had taken place in the formation of the original aneurism—in fact, an erectile tumour.

M. Robert at first, and afterwards M. Malgaigne, have doubted whether the tumour first operated on was an aneurism at all.

CASE II.—On April 25, a case was related to the Academy of Sciences, which had been operated on by M. Niepce. The aneurism was popliteal; five minutes after injecting the perchloride of iron, the tumour became very hard; and, on

removing pressure from the femoral artery, pulsation was found to have ceased in the sac. On the next and following days, there was severe inflammation in the parts operated on. On the eleventh day, fluctuation was perceived at the inner side of the tumour, and about two and a half drachms of purulent serum escaped on making a small puncture. On the twentieth day, the place of the tumour was occupied by a hard cicatrix of the size of a nut.

CASE III.—At the meeting of the Academy of Sciences on May 9, M. Lallemand communicated, for M. Serre, of Alais, the particulars of a case of varicose aneurism at the elbow, which had been successfully treated by the method of M. Pravaz. The clot was soon formed; pulsation did not return when pressure was removed from the bronchial artery; and, at a later period, pulsation disappeared in the radial and ulnar arteries. Inflammation, with suppuration, took place in the vicinity of the sac; an eschar was detached from the sac, without producing the least hemorrhage; and cicatrization advanced rapidly.

M. Malgaigne acknowledges that in the cases of MM. Niepce and Serre—true aneurisms—the method appears to have succeeded. Yet the inflammation and suppuration of the sac in the former case, and the suppuration and sloughing in the latter, show that even these cases are not unattended with danger.

CASE IV.—This case is given in the *Revue Méd. Chir.* for October, 1853, and in M. Malgaigne's article. A student had false aneurism at the bend of the arm; it had followed a wound made in venesection. It had been present for three months, and was as large as a hen's egg. On May 21, M. Velpeau carefully injected eight drops of solution of perchloride of iron, procured from M. Burin du Buisson. The consistence of the tumour appeared augmented; but, on removing pressure which had been applied to the brachial artery, pulsation returned. On June 11, ten drops were injected, but without success. The tumour increased in size and became inflamed; and, on June 18, M. Velpeau tied the brachial artery. After a little trouble, produced by ulceration and discharging of clots from the tumour, the patient was discharged cured, on August 4.

CASE V.—On May 19, 1853, M. Lenoir operated for popliteal aneurism, on a man aged 62. He injected seven drops of the solution of perchloride of iron, without producing any effect on the pulsations. On May 31, sixteen drops were injected without results; and, on June 18, twelve drops of M. Dubuisson's solution were used. On June 23, the patient was seized with pain in the affected part attended with febrile symptoms. The pulsations had, since the last injection, become much weaker. On June 24, the popliteal region was hot, tense, and very tender; the pulse was 120; the skin very hot and dry; the patient moaned constantly; the superficial veins of the leg and thigh were more distended than usual. The patient was bled, and poultices and mercurial frictions were applied to the tumour. The symptoms went on increasing; extreme prostration and delirium appeared; and the patient died on June 28.

An examination of the body showed numerous points of ossification on the artery. Blood was effused all round the tumour, and in the neighbouring muscles. The swelling was hard, and was filled with a sanguineous mass, adhering to its walls. The femoral vein, at the level of the tumour, was flattened, and almost impermeable; higher up, it was filled with a sanious fluid, which did not extend into the veins of the pelvis. The pericardium contained some serosity, and presented traces of old pericarditis.

CASE VI.—A patient was admitted into St. Andrew's Hospital, at Bordeaux, with aneurism of the femoral artery. M. Soulé injected four drops of a solution of perchloride of iron. The tumour immediately became hard. Compression was maintained for a quarter of an hour; when it was removed, pulsation immediately returned. Moderate pressure on the artery was kept up; and, five days after the first operation, M. Soulé injected seven drops. On this occasion, severe pain was produced; the patient could not sleep; the tumour inflamed and increased in size; and complete coagulation could not be obtained. Fearing ulceration and hemorrhage, M. Soulé tied the femoral artery about five weeks after the last injection. The patient recovered.

CASE VII.—In a case of traumatic aneurism, of the size of a cherry, seated on the posterior tibial artery, near the internal malleolus, and from which there

had several times been hemorrhage, M. Soulé injected some of the solution, and plugged the wound with some charpie impregnated with it, and applied a compress. In three days, no result having been produced, he opened the tumour, and found that the artery had completely divided. It could not be tied; but pressure, by means of plugs of charpie dipped in Pagliari's solution, was successful.

CASE VIII.—M. Alquié, of Montpellier, relates the following case in the *Revue Thérapeutique du Midi*. M., aged 50, accidentally wounded his ulnar artery, on June 20, while cutting wood. On July 16, there was a pulsating tumour, of the size of a pigeon's egg, on the upper part of the hypothenar eminence; it was covered by a small suppurating wound. On the 20th, five drops of solution of perchloride of iron, with five drops of water, were injected; and a compress dipped in the solution was laid on the tumour. The pulsation diminished, but did not entirely cease. On July 21 and 22, there was severe pain, and the pulsations had become stronger. On the 23d and 24th, erysipelatous redness, accompanied by swelling and tension, extended from the hand to the elbow. The symptoms went on increasing; and, on the 27th, there was an escape of purulent fluid at the seat of the tumour; ulceration was also extended along the forearm. On the 29th, the pulsation in the tumour continuing, and signs of impending rupture appearing, the brachial artery was tied. The pulsation ceased, but reappeared on August 2; and, on the 7th, copious hemorrhage took place from the wound over the aneurism. The ulnar artery and a collateral branch were tied at the lower part of the arm. After this, the pulsations were arrested; the tumour diminished; and the patient was discharged cured on September 18.

CASE IX.—M. Dufour thrice injected a large aneurism of the right carotid artery. Violent inflammation was produced; the tumour sloughed and burst, and the patient died of hemorrhage. (*Annales Cliniques de Montpellier*, April 10, 1853.)

CASE X.—M. Jobert has operated on a patient. Gangrene and death supervened. The particulars of this case have not yet been published; it is merely mentioned by M. Malgaigne.

CASE XI.—M. Malgaigne (*loc. cit.*) relates a case which came under his own care in the Hôpital St. Louis. A workman in a soda-water manufactory, aged 29, was admitted, on July 30, with traumatic aneurism at the bend of the elbow. M. Malgaigne at first applied pressure without effect, and was deterred from applying the ligature by the fear of producing gangrene, especially as the median nerve had been injured. He then determined to inject the sac; taking the precaution of applying pressure *above*, in order that coagulation might not be prevented by the impulse of the blood sent from the heart; and *below*, that the injected matter might not be carried into the smaller ramifications of the vessel. He was obliged to puncture the tumour in several places, before he could arrive at its interior. He injected five drops. Compression being removed, pulsation was not felt in the radial; but in the course of the day it returned. The punctures healed readily; but, on the fourth or fifth day, the patient complained of severe pain in the interior of the sac. In three days it had become very severe, and the sac was much enlarged, and had a blackish spot on its surface. Fearing that rupture might take place, M. Malgaigne applied a ligature with some difficulty, from the inflammatory engorgement of that arm. Pulsation immediately ceased in the tumour and in the radial artery. The patient had erysipelas of the arm, and rheumatism in the knees, which were successfully treated by poultices and veratrine. After some days, finding that the tumour did not diminish, M. Malgaigne opened it, and removed a large coagulum, which contained only blood-corpuscles.

In some remarks made with reference to his case (Case V.) (*Gazette des Hôpitaux*, Oct. 25), M. Lenoir, after describing the instrument of M. Pravaz, and the manner of using it, said that it did not act so exactly as he could desire. A clot of greater or less density would be formed in the canula of the syringe, by the solution of perchloride meeting the blood; and the resistance thereby produced is sometimes so great as to force back the whole of the injec-

tion behind the piston. In either case, it would not be possible to form any other than an approximative idea of the number of drops injected.

To remedy the first inconvenience—the obstruction of the canula by a clot—M. Lenoir fitted to the syringe a long canula, capable of being introduced through the canula of the trocar. With this canula, the solution is introduced into the current of the aneurismal sac, without risk of coagulating the blood in the canula of the trocar. To ascertain whether there was any reflux of the fluid behind the piston, M. Lenoir has used a glass syringe, so as to observe all that passes in its interior.

There is, according to M. Lenoir, another difficulty, viz.: to be able to introduce the point of the instrument precisely into the blood in the aneurism. In his own case, he failed in at once reaching the blood; and he believes that he introduced the instrument into the fibrinous deposit in the interior of the sac. The repetition of exploratory punctures, he justly observes, might produce inflammation and suppuration of the aneurism. This difficulty of finding the interior of the sac may not always present itself; but M. Lenoir would be inclined, if it should again occur to him, to inject the hemostatic fluid into the part of the artery immediately above or below the aneurism. In this way, there would be only a small quantity injected, a healthy part of the vessel would be operated on, and the same results would be produced.

M. Lenoir also referred to the danger of wounding important structures in the vicinity. In his own case, he seemed to have injured the vein—probably in one of his exploratory punctures—and this was more likely, as the vein was flattened, and adherent to the aneurism, and almost impermeable to blood; hence giving no indication of its locality.

Dangers, Difficulties, and Precautions.—In the *Bulletin Gén. de Théráp.* for May 15, Dr. Debout, the editor of that periodical, offers some remarks on the subject. He had performed some experiments with the view of determining how much of the solution of perchloride of iron could be used without producing arteritis. He described the appearances found in a horse, into whose right carotid he had injected seven drops, and into the left fifteen drops. The caliber of the right carotid artery was free, and its lining membrane quite healthy. The left carotid, on the other hand, presented redness, thickening of the membrane, and deposit of pus, with which was mixed the debris of the coagulum.

Dr. Debout points out the importance of pressure as an auxiliary, in preventing the coagulum from being broken up by the current of blood. Three or four years ago, he produced coagulation of the blood in a false aneurism at the bend of the arm. Pressure on the humeral artery was not maintained, and the clot was redissolved. Unless pressure is maintained, he believes that, to produce a clot capable of resisting the current of blood in men, it will be necessary to use such a quantity of the solution of perchloride of iron as will expose the patient to the danger of arteritis. If proper precautions be observed, Dr. Debout is in favour of the operation.

At a meeting of the Academy of Sciences on May 9, M. Lallemand observed that “the success which had already attended M. Pravaz’s method of treatment, confirmed him in his opinion of its superiority to all other methods. He was firmly persuaded that the method of injection would produce as complete a revolution in the treatment of aneurism as lithotrity had produced in the treatment of calculous diseases. The first instruments used in the latter operation were complicated and imperfect, and, for a long time, successful cases were mingled with severe accidents and numerous reverses; but now lithotrity is not what it was at its commencement. It will no doubt one day be the same with the method of M. Pravaz.”

M. Debout also expressed himself in favour of the operation, when performed with proper precautions, such as those to which we have already referred.

M. Malgaigne is an opponent of the method. He points out in his paper, which we have quoted, that, in eleven cases, four died, eleven had severe symptoms, and two were successful. He concludes in the following terms: “With regard to aneurisms, although the possibility of curing them by the injection of perchloride of iron be placed beyond doubt, the successful cases are so rare, obtained at the price of so many accidents, and counterbalanced by so many

reverses, and even by deaths, that, at present, I think that no prudent surgeon could expose his patients to the results of such a disastrous mode of treatment."

An animated discussion followed the reading of M. Malgaigne's paper.

M. Moreau believed that the operation ought to be at once and totally discarded.

M. Roux and M. Velpeau agreed that there was little evidence as yet in favour of the operation, but would suggest a more extended course of experiments.

We do not entirely agree with the sweeping condemnation of M. Malgaigne; and would prefer following, and recommending our readers to follow, the more moderate advice of MM. Roux and Velpeau. Yet the operation is one which should not be undertaken without due reflection on its possible dangers, nor until treatment by compression has been tried and found ineffectual. As regards the relative merits of injection and ligature, the former appears at first sight to possess an advantage over the latter, in not involving impediment of the circulation in any collateral branches which may be given off between the aneurism and the seat of ligature.

The principal difficulties in the operation appear to us to be: *first*, to determine the quantity of the fluid which shall, when injected, coagulate the blood, and at the same time set up only a moderate degree of inflammatory reaction in the walls of the aneurismal sac; *second*, to insure the non-removal of the coagulum. The first of these can only be removed by experiment and experience; and, with regard to the second, we would advise any surgeon who performs the operation of injecting an aneurism, *to maintain for some time moderate pressure on the artery above the aneurism*—sufficient to moderate the flow of blood, yet not so great as to entirely cut off the supply.

Treatment of Varix.—The solution of perchloride of iron has also been employed in the treatment of varix. M. Pétrequin has injected the perchloride of iron and manganese in several cases of varicose enlargement of the saphena vein. The effect produced was obliteration of the vein.

In the *Bulletin de Thérapeutique*, for September 15, Dr. Debout refers to six cases of varicose veins operated on by M. Desgranges, of Lyons. In five, there were no remarkable symptoms; but the sixth patient died, after an attack of inflammation of the whole upper third of the leg.

This plan of treatment is worthy of further investigation. In the mean time, the following remarks by Dr. Debout should be borne in mind:—

"It is not enough that the operation succeed, and that the patients leave the hospital cured of the disease on account of which they have been admitted. The cure must be permanent. If, after a longer or shorter interval, the disease reappears, the performance of the operation has been a mere waste of labour and time; and it becomes the duty of the surgeon to abandon the plan, however innocent it may appear to be. . . . In the Bicêtre, we have seen a great number of old persons, in whom the obliteration of varices had been in vain attempted. After a greater or shorter lapse of time, they were always reproduced. When the caliber of the vessel is closed at one point, the blood takes another course—distends the small veins. If these anastomoses are not actually developed, so as to reproduce the disease, they at least serve to convey the blood into the varicose vein below the obliterated portion. . . . In making these remarks, we only wish to call the attention of surgeons to all the elements of the problem which they attempt to solve."—*Assoc. Med. Journ.* Dec. 9, 1853.

38. *Best Mode of employing Galvano-puncture in Aneurisms and Varicose Veins.* By M. STEINLIN.—Baumgarten and Würtenberg had, by actual experiments, obtained the following results: 1. The negative pole alone gives rise to no coagulation. 2. The two poles used together produce but a very slow, feeble, and incomplete coagulation. 3. The positive pole alone produces coagulation very rapidly, completely, and infallibly. The *Weiner Zeitschrift* publishes some further experiments of M. Steinlin, which he performed in such a manner that the effects of galvano-punctures could be immediately seen, which circum-

stance could not exist in Baumgarten's experiments, as the latter were performed upon living men or animals. M. Steinlin used principally albumen. We have not space for full details of these experiments, but shall merely state that the above propositions were completely verified. M. Steinlin advises a combination of zinc and lead, or tin, to be used in galvano-puncture; or to have the steel needles covered with a layer of zinc. The mode of performing galvano-puncture is as follows: The needles are thrust into the aneurismal tumour, or the varicose vein, and then connected with the positive pole; after which the negative pole is brought in contact with a platinum plate, and placed on the skin in the vicinity of the aneurism. The integument should be moistened with a dilute acid or a saline solution. Instead of the platinum plate, a sponge dipped in a saline solution may be used.—*Lancet*, Feb. 18, 1854.

39. *Treatment of Nævus by Tartar Emetic Plaster.*—Dr. CUMMING read to the Westminster Medical and Surgical Society (Feb. 17, 1854) a paper on this subject. After alluding to the various methods that have been adopted in the treatment of these cases, and to the objections which apply to many of them, he stated that the most satisfactory cures had resulted from the inflammatory and ulcerative processes being spontaneously set up in the tumours, and producing the obliteration of the enlarged vessels by suppuration. He then mentioned Mr. Hodgson's plan of vaccinating the tumours, for the purpose of exciting the adhesive inflammation, but regarded it as a doubtful method of cure, since, though the tumour might be studded over with punctures, only two or three vesicles might arise, and only a partial obliteration ensue. He suggested, therefore, the more effectual plan of treatment by tartar emetic, the method of applying which will best be illustrated by the following case: A child, aged nine months, was brought to him on account of its having lost a large quantity of blood from a vascular nævus on the right temple. The side and central portions of the tumour had been removed by the vaccinating process some time previously. Pressure and cold astringent lotions were first used unsuccessfully. He then determined to use tartar emetic, hoping that, as the eruption produced by this agent resembled that occasioned by the vaccine matter, it might succeed in obliterating the distended vessels. A compound of fifteen grains of tartar emetic mixed with one drachm of galbanum plaster was spread on a piece of thin leather, cut accurately to the size of the tumour, and applied to the nævus. On the third day, inflammatory redness had occurred without causing much pain or irritation. On the seventh and eighth days, the pustules appeared, and, in order to secure as many as possible, the plaster had been pressed gently down over the pustules daily, until it was removed on the ninth day, at which time the eruption had completely involved the diseased structure. The pustules ran through their usual course, and in due time a slough was detached, and the ulcerated surface healed rapidly, the resulting cicatrix being scarcely noticed. Eight similar cases were then successively narrated, in all of which the same simple method of treatment was adopted with like success, the only exception being in one of them where the cure was only partial, in consequence of the tumour having been situated too near the angle of the orbit to permit the free use of the tartar emetic plaster. In all the other cases, the scars which resulted were comparatively slight. He then exhibited a patient on whom he had thus operated for two nævi, one of which being situated on either brow; the cicatrices which had followed, though large, were not unsightly.—*Lancet*, Feb. 25, 1854.

40. *Treatment of Erectile Tumours by a new Method of Ligature.*—In the third volume of the *Mémoires de la Société de Chirurgie* of Paris, there is a paper on the treatment of erectile tumours, by M. RIGAL. After reviewing the different methods hitherto employed in the treatment of these affections, M. Rigal recommends the ligature as the preferable proceeding, employed in a manner peculiar to himself. It consists in using a multiple ligature, the loops of which are tied beneath strong pins, and thus strangulate the tumour without running the risk of allowing the least part of it to escape. The following is the plan described by M. Rigal, in one of his recorded cases: A sewing needle of suffi-

cient strength was carried across the tumour and beneath it, drawing the two ends of a thread through the puncture. A second needle is passed in the same manner below the tumour; their passage thus divided the tumour into three parts of about equal size. Each of the threads was then cut off close to the needles, and thus there were two ligatures free in each of the passages. Then a small and rather strong curved needle was plunged below the upper extremity of the tumour, and was made to pass out on the opposite side. The two extremities of one of the threads were then firmly tied below the needle; the same proceeding was taken at the other end of the tumour. The middle part was perforated by another needle, and one of the upper, and one of the lower threads were tied together beneath it, thus completely strangulating the middle portion of the tumour. The interlacement of the threads, although easily demonstrated by diagrams, is however too complicated for verbal description; but it is sufficient to state, that when the threads are all drawn tightly together, the result was the separation of the erectile tumour from the surrounding parts. The ends of the pins were removed by the cutting pliers. The tumour daily acquired a deeper and deeper brownish tint; it hardened as it became dry. Soon afterwards, the furrow marking the line of strangulation began to ulcerate, pouring out a few drops of well-conditioned pus; and, on the eighth day, the erectile tissue dropped off spontaneously, bringing away the pins and the loops of thread. Although the number of the ligatures and of the pins requires to be varied according to the size and the situation of the tumour, the principles of the operation remain always the same; and no deviation was adopted in any of the operations of M. Rigal, who illustrates his observations by the record of seventeen cases, all of which were successful.

The conclusions arrived at by M. Rigal are the following: namely, that the ligature above described, and which M. Rigal calls the *ligature à chaîne enchevillée*, constitutes a new method for the removal of erectile tumours; that it is applicable not only to pedunculated tumours, but also to morbid productions reposing upon broad bases; that it may be employed upon all the regions of the face and trunk; that it prevents the hemorrhage which accompanies or immediately follows a sanguinary operation, and that which may probably result from the falling of mortified tumours; that its efficacy, its safety, and the little influence which it exercises upon the economy, appear to depend directly upon the energy of the constriction, on the instantaneous isolation, and the immediate death of the parts comprised within the double inclosure of its knots; that the scars which result are firm, movable, and of a remarkable smoothness, and are obtained by the aid of very simple dressings; that the operation is rapidly performed, and that the presence of the pins causes no pain, even in children; that this kind of ligature permits the operator to spare a more or less considerable portion of a movable structure, such as the lips and the eyelids, even when two-thirds of the thickness of these organs have been involved; and that, although it may not be adapted for every case, it will yet be found the most appropriate treatment in a great many instances.—*Assoc. Med. Journ.* Dec. 23, 1853.

41. *A new Mode of Tying Vessels.*—Prof. MATTEI, of Corsica, proposes a new kind of ligature, consisting of two loops, intercrossed, and with the ends in opposite directions. The end of the vessel is placed between these loops, and constricted by pulling at the ends; or, if it is an entire and undetached trunk which has to be tied, one loop is first passed around the vessel in one direction, and then the other around it in a contrary direction, taking care to thread the ends in such a way around the silk forming the first loop, as to secure the necessary intercrossing. If the vessel is of large size, the ends of the loops are made to have an extra turn upon each other. After the vessel is tied, one end of each loop is cut away close to the vessel, and the other end is brought out of the wound, the two remaining ends being disposed as nearly as possible in opposite directions. In this position they are allowed to remain until the vessel is obliterated, and then they are removed by gentle traction at each of the protruding ends, each loop slipping away from the other with perfect readiness, and without in any way disturbing the parts. In some cases, also, M. Mattei

does not clip away any part of the loops, but, attaching a thread to their bends, and bringing these threads out of the wound along with the ends of the loops, he is able to bring away the loops by pulling at the threads attached to them.

The grand advantage of this process is, that, instead of having to remain until the included portion has been slowly eaten through by absorption, the ligature may be removed as soon as the vessel is obstructed; and thus one grand impediment to the process of healing by the first intention is removed. Another advantage is, that the doing away with the ulcerative process lessens the risk of secondary hemorrhage.

M. Mattei has tested the applicability of his plan in amputations of the breast, leg, and arm. He removed the ligatures from the principal vessels on the fourth or fifth day, and from the smaller vessels in the course of the next day, and without any loss of blood. But he has not yet had an opportunity of experimenting upon the femoral or larger vessels.—*Ranking's Abstract*, vol. xviii. from *Révue Méd.-Chirurg.* April, 1853.

42. *Ligation of the Common Iliac for Aneurism of the Gluteal Artery.*—Prof. C. W. F. Uhde relates the particulars of ten cases of gluteal aneurism, in which the gluteal artery was tied three times, the internal iliac six times, and the common iliac once. It appears that the common iliac has been tied about eighteen times. In six of these, the patients recovered; in the others, death happening in periods varying from two hours to eight months.

The patient M. Uhde operated upon was a smith, æt. 26, who had long been afflicted with rheumatism, and who was then suffering from violent pain in the thigh, in consequence of the pressure of the aneurism upon the principal nerves of the limb. The common iliac was tied in the usual manner upon the 7th October, 1852, and death followed on the 11th. On examination, the wound was found in a healthy state, but the areolar tissue surrounding the iliac vessels was infiltrated with pus, and the superjacent peritoneum covered with a thin layer of lymph. The gluteal artery within the pelvis was somewhat dilated. The site of the gluteus medius was occupied by the sac of the aneurism, and there was scarcely a single relic of the muscle remaining. The sac itself was filled with coagulum.—*Ranking's Abstract*, vol. xviii. from *Deutsche Klinik*, No. 8, 1853.

43. *Puncture of Chest by a Needle; Probable Wound of the Heart; Extraction of Needle; Death.*—Dr. W. M. DOBIE relates the following case, which occurred in Prof. Syme's surgical ward:—

On the morning of Thursday, September 9, 1852, an Irish woman, carrying in her arms an infant of four months old, presented herself at the surgical waiting room. She stated that a needle, sticking in her own dress, had accidentally been forced into the child's chest on the day previous. The child, from the time of the accident was in the greatest distress, crying constantly, and never remaining quiet for a moment. The mother carried the child to a medical man this morning. He made an attempt to extract the needle, but, failing, recommended her to go to the Surgical Hospital. On examining the front of the chest, I found a small wound about an inch below the left nipple, and a little nearer the mesial line. I placed my finger upon it, and felt distinctly a hard point moving up and down under the skin, with each respiratory movement of the chest. Having slightly enlarged the external wound, I succeeded, after a trial or two, in catching the needle under the nail of my left fore-finger, and retaining it opposite the external orifice. Having done this, I waited until the child ceased to cry, when I seized the needle with a pair of Mr. Syme's eyed-forceps, and extracted it by a combined drawing and twisting movement. Two or three drops of yellowish serous fluid oozed from the wound after the removal of the needle. The child instantly ceased to cry, and took the mother's breast, which it had refused prior to the extraction of the needle. The mother was directed to give the child a teaspoonful of castor oil, and to keep him perfectly quiet and moderately warm.

The following measurements were taken:—

Distance between nipples, $3\frac{1}{2}$ inches.

Distance between wound and middle line of the body, $1\frac{1}{2}$ inch.

From left nipple to wound, $1\frac{1}{8}$ inch.

On Friday, I again examined the child. I found it restless and uncomfortable. Skin hot and dry; pulse about 120 in the minute. Heart's sounds normal in character, somewhat muffled, and the apex could nowhere be felt punctuate. Präcordial dulness considerably increased in the upward and transverse direction. Abdomen was much distended and tympanitic. Respirations were very rapid, but nothing abnormal could be detected in the lungs or pleura by percussion or auscultation. An accurate examination was rendered very difficult, from the restlessness and crying of the child, and the excessive filthiness of the mother. Perfect rest was enjoined, and, as the bowels had not been moved, a second dose of castor oil was ordered to be given. Next day (Saturday), in consequence of indisposition, I was unable to visit the child, but sent Mr. John Brown, who was at that time acting as dresser in the clinical-surgical wards, to see the case for me.

Mr. Brown found the child worse than on the previous day. The bowels had been moved freely by the castor oil. Skin still hot and dry; respirations quick, laboured, entirely thoracic; pulse quick and feeble, but regular. Präcordial dulness extended vertically, commencing higher than normal; great distension of abdomen; eyeballs turned up. The treatment consisted of the administration of small doses of a mixture of equal parts of hydr. c. creta and Dover's powder. A teaspoonful of wine to be given occasionally.

On Sunday (September 12), I visited the child. I found the cardiac dulness evidently increased; it was difficult to hear the heart's sounds, from the extreme rapidity of its action. Respirations rapid and very feeble; child evidently sinking. An additional allowance of wine was ordered. The child died in the course of the day.

I went the next day, with instruments in my pocket, to endeavour to procure an examination of the body; this was obstinately refused by the parents.

An interesting question at once presents itself: What organ did this needle penetrate.

Professors Syme and Goodsir, to whom I related the case, were both of opinion that the needle must have entered the pericardium or the heart. I think it probable that the needle impinged upon the right ventricle. I may mention, that I passed a needle upwards and inwards, in the direction already indicated, into the chest of a foetus of the seventh month. I found the left ventricle slightly wounded, and the needle had gone through the middle of the right ventricle.

The freedom of acupuncture wounds from dangerous effects, is due, most probably, to the tenuity, sharpness, and polish of the instrument with which they are inflicted. The introduction of the needle is attended with no disturbance to the neighbouring textures, and no access of air can take place. In this respect, they resemble the subcutaneous wounds made by the tenotomy knife.

In the present case, I believe that, if the needle had been extracted immediately after the receipt of the injury, the child, in all probability, would have recovered. I think, in the present case, that there was no pleurisy; if it existed, it must have been very limited, or we should have had some evidence of it. The same may be said with reference to the existence of pneumonia. I think, however, that it is not improbable that the lung was wounded.

That pericarditis was present is pretty evident, if we take into consideration the increased area of præcordial dulness, the fact of the apex not beating distinctly at any point, and the indistinct muffled character of the sound of the heart when the effusion was at its greatest. I shall not proceed to inquire what would be the effect of the motions of the heart on a needle fixed in the parietes of the chest. Supposing the pericardium to have been the site of the injury or puncture, it is not improbable that inflammation of the muscular substance of the heart may have been set up along with the pericarditis.—*Monthly Journ. Med. Sci.* Oct. 1853.

44. *Wound of the Abdomen and Intestines terminating favourably.*—On the 25th of September, 1838, Dr. LUCAS CORONEL Y DIAS was called to see a soldier, 23 years of age, who had been wounded shortly before. On examination, there was found, between the anterior and superior iliac spine of the left side and the umbilicus, a wound, directed from above downwards, and from without inwards, traversing the whole thickness of the abdominal wall, and giving outlet to a loop of intestine, partly covered with omentum, the wound bleeding freely, and partially covered by clots. Cold fomentations having been employed, with a view both of stopping the hemorrhage and of allowing the state of the gut to be seen, it was ascertained that the portion of the intestinal loop which corresponded to the anterior and inferior angle of the wound had been divided in a longitudinal direction for the space of about six lines. Dr. Diaz, having had the patient conveyed to the hospital, determined to practise the intestinal suture, not being willing to expose the patient to the infirmity of an artificial anus. The operation was performed in the following manner: The surgeon, seizing, with the thumb and index finger of the left hand, the serous coat of the intestine, succeeded in turning the edges of the wound inwards towards the cavity of the intestine, and in bringing them in contact. Five points of suture were then applied, so that, when the wound healed, the threads might fall into the cavity of the intestine, and not into the peritoneum. The taxis was then carefully applied, and the intestine returned into the abdomen. The edges of the abdominal wound were then brought together by four points of interrupted suture and three slips of adhesive plaster. On the following day, there were symptoms of considerable reaction, pulse hard and full, tongue dry and loaded, some pain and tenderness of the abdomen. The patient was bled to six oz., and eighteen leeches were applied to the abdomen with some relief to the symptoms. On the fifth day after the operation, some puriform matter was passed by the anus. The fever and pain in the abdomen were much diminished. The opium, which had been given up to this time, was ordered to be discontinued. The next morning an emollient injection was given, which produced two stools. The external wound was examined for the first time, and was found covered with healthy pus, and united in all its extent, except at the anterior and inferior angles. On the thirteenth day after the operation, the external wound was almost entirely cicatrized. On the thirtieth day after the operation, the patient left the hospital, and a fortnight afterwards he returned to his regimental duty.

The patient in this case had taken no food for six hours before the time when he was wounded; he had always enjoyed excellent health, and assistance was afforded him very promptly. To these circumstances, Dr. Diaz attributes much of the favourable result.—*Monthly Journ. Med. Sci.* from *Gaceta de Madrid*, Sept. 1853.

45. *Cerebriform Tumours of Kidney mistaken for Ovarian Tumours.*—Dr. GREENHALGH related to the North London Medical Society (Dec. 14, 1853) the case of a young woman, twenty-one years of age, who, after being struck over the region of the left ovary, presented symptoms of ovaritis which yielded to calomel and opium, leeches, etc. Some time after recovery from the acute symptoms, a swelling about the size of an orange was detected in the iliac fossa, which continued to increase, and appeared, by its pressure, to interfere increasingly with the development of three children borne during the ensuing seven years. It was pronounced by skilled practitioners to be ovarian, and a fit case for removal. After her last confinement she sank from exhaustion, and the tumour was found to be a kidney, the subject of cerebriform disease, weighing twenty-seven pounds.

46. *Ovariotomy.*—Mr. ERICHSEN communicated to the North London Medical Society (Dec. 14, 1853) an account of a case in which he had recently successfully extracted a large ovarian tumour from a lady 65 years of age. The tumour, which was principally solid, and weighed about sixteen pounds, was removed by the long incision. The patient made an excellent recovery, not having had a bad symptom. Mr. Erichsen stated, that so far as the surgical management

of these cases was concerned, he thought the principal points deserving attention were to proportion the length of the incisions to the magnitude of the tumour, to diminish this in size by tapping, after the abdomen had been opened, and, in ligaturing the pedicle, to take care that the peritoneal investment of this root was dissected off along the line of application of the ligature. In this way the risk of peritonitis was lessened very materially. He also advised that the stump of the pedicle should be well drawn out through the lower part of the line of incision, and fixed there by twisting its ligature round the hare-lip pins, by which he recommended this part of the incision to be closed. Mr. Erichsen then proceeded to discuss the general question as to the propriety of extracting ovarian tumours, and, after pointing out the serious and often rapidly fatal character of this disease, the inutility of medical treatment and the dangers of tapping, expressed his opinion, that the operation was a sound and legitimate one in those cases in which the growth had begun seriously to interfere with the comfort of existence and the healthy action of the abdominal organs, the patient wasting and suffering much discomfort from her size, with difficulty of breathing, repeated vomiting, and gastric irritation. In these cases he saw no chance of giving the patient any effectual relief, except by the ablation of the tumour, which statistics showed could be done with success in nearly two cases out of three. He next proceeded to discuss the difficulties of the operation, which were rather of a medical than of a surgical character, consisting in the diagnosis of the existence of such adhesions as would prevent the removal of the growth, or in the difficulty that occasionally occurred of discriminating between ovarian and other kinds of abdominal tumour that did not admit of extirpation.—*Med. Times and Gaz.*

47. *Cancer from Inoculation.*—Mr. RICHARDSON presented to the Medical Society of London (Jan. 14, 1854) the uterus and vagina, and the heart of a patient, whose case he had formerly laid before the Society, as one probably of cancer by inoculation. The husband died some years ago from cancer of the penis, and had had sexual intercourse with the patient long after the occurrence of the gleety discharge which accompanied the cancer, and, until the act, gave him much pain. The patient remained well until upwards of two years after the death of her husband, when she first complained of weakness, anaemia, and a distressing sense of bearing down. Dr. Snow then saw the case with Mr. Richardson, and, on examination, they found a bleeding fungoid mass, breaking up most readily on the introduction of the finger. She at length sank from exhaustion, following the loss of blood, and the repetition of three-grain doses of opium. Mr. Richardson then forwarded the sexual organs to Dr. Edward Smith, for microscopic examination, who reported as follows:—

"The case is one of epithelial cancer. The structures at the entrance to the vagina are free from the disease; but, within three-quarters of an inch of that point, the mucous membrane presents a patch of epithelial cancer, and thence the disease extends to the anterior wall and the structures exterior to the mucous membrane of the urethra. There are also three other small points on the vagina which are not affected, viz. immediately above the patch just mentioned, a rounded space about the centre of the vagina surrounded by the projecting cancerous mass; and, lastly, that part which surrounds the projecting os uteri. At all these points the mucous membrane retains its natural epithelium. The cancerous mass, therefore, occupies nearly the whole of the vagina, and is fully nine lines in thickness, at the back part, near to the centre of the canal, where it also projects nearly half an inch into the cavity above the level of the mucous membrane. It also involves all the tissues except in the patch near to the entrance of the vagina, where the mucous membrane is alone affected. The whole of the lip of the os uteri, and, indeed, the canal of the neck, is ulcerated, and the tissues infiltrated with the cancer. The body of the uterus is enlarged and vascular, but no cancerous growth is found on the walls, or on the mucous membrane. A careful examination of the blood in the capillaries beneath the mucous membrane failed to detect any evidence of the disease within the vessels. I am not quite clear that the mucous membrane of the neck of the bladder, or of the urethra, had been attacked with cancer. It

is quite clear that the malignant disease had seized all the subjacent tissue, and that a rent in the mucous membrane occurs at that spot, but I think it probable that the perforation has resulted from *post-mortem* manipulation. The cellular character of the disease is most evident, and the cells of the small size, which is met with in epithelial cancer, developed in resisting tissues. There are also many of the large, well-defined granular cells said to characterize the colloid forms of the disease."

Mr. Richardson inferred that this was a case of cancer communicated by direct contact, either by or to the woman, and had ascertained from country practitioners that many similar instances had been traced. Mr. Paget and Dr. Druitt had also borne corresponding testimony.

Dr. Ogier Ward recommended the application of nitrate of lead in the proportion of gr. v to $\frac{3}{4}$ of acidulated water, in cases of hemorrhage, with or without offensive discharges.

Mr. Rogers Garrison, in reference to this case, and also to one which had occurred to Professor Quekett, and was related by Dr. E. Smith, considered that we should be chary in admitting the possibility of such a mode of communication.—*Med. Times and Gaz.* Jan 21, 1854.

48. *Upon the Specific Nature of Blennorrhagia.* By M. PIERRE VIGUIER, Surgeon to the Hôtel Dieu, Lyons.—M. Ricord has affirmed that blennorrhagia, uncomplicated with a primary syphilitic sore, is never virulent. He has even denied all specificity as an inflammation. Consequently, he believes that "women frequently communicate blennorrhagia without having it themselves." According to the author, it would be more correct to say: "Women affected with discharge from the organs of generation, such as fluor albus, menstrual discharge, uterine catarrh, &c., can occasionally give to the male urethritis."

Urethritis and blennorrhagia are two inflammations which should not be confounded; they differ in their cause, progress, and nature. M. Thiry has arranged blennorrhagia under four heads: 1, simple blennorrhagia; 2, virulent blennorrhagia; 3, blennorrhagia produced by a chancre; 4, a specific blennorrhagia, which he does not define.

M. Viguer calls simple inflammation of the canal urethritis. This can be excited by drink, excess of connection, mechanical irritation. Blennorrhagia he calls a specific inflammation, dependent upon the contact of pus, possessing specific properties, but differing from the pus of syphilis. This form consequently differs from blennorrhagia virulenta, or that arising from the presence of a syphilitic urethral chancre.

Urethritis is attended by purulent secretion, ardor urinæ, and oedema of the prepuce; but, in the course of a few days, the active stage being passed, it shows a natural tendency to resolution. Its extinction is complete, and it leaves no trace of its presence in the canal. There is no necessity for cubebs, copaiba, &c. Great drinkers of beer are stated to afford most instances of this affection, and the disease rapidly disappears by purging and abstinence from the exciting fluid. There is no chronic stage. When Swediaur wished to prove, by injections of ammonia into his own urethra, that he could produce blennorrhagia at will, he failed, for the only affection resulting was urethritis.

After coitus with an infected female, four, six, or eight days generally elapse before the appearance of the discharge of blennorrhagia. There is first unpleasant pruritus; then some obstacle to the flow of urine; lastly, discharge. These last, namely, the obstacle to the flow of urine and the discharge, increase to the tenth day, when they have reached their summum of intensity; the pus is then yellow, or yellowish-green, abundant, and tinged with blood. Erection is painful, and disturbs the sleep; the canal is hard, and affected by inflammation through its entire thickness; there is weight in the perineum, and often propagation of the inflammation to the bladder, to the vas deferens, and to the epididymis. To this acute stage succeeds a second, called by the author "curative," which alone must be selected for the administration of anti-blennorrhagic medicines, if it be desired to gain from them all the good effects of which they are capable. When administered at an earlier period, their action ceases with the diminution, but by no means with the disappearance of the

acute symptoms. There is not in blennorrhagia a tendency to spontaneous cure as in urethritis; the discharge may become permanent, losing, however, its yellow colour, and becoming almost limpid; excess in drinking or coitus causes its rapid reappearance.

Blennorrhagia is always produced by contagion; blennorrhagic pus must be deposited upon the mucous membrane of the urethra; but certain conditions are required to favour the development of the disease—the quantity of pus, its prolonged action, irritation of the urethral mucous lining, &c. An individual having frequent acts of connection with a blennorrhagic female would be sure to contract the disease, when another individual more careful would escape.

During the chronic stage of the disease, there is no danger from fresh infection; but the original disease may acquire increase in intensity.

The author concludes by general remarks in opposition to the statement by M. Ricord, that blennorrhagia may be produced by common, and not specific causes.—*Medical Times and Gazette*, Jan. 7, 1854, from *Gazette Hebdom.* Dec. 1853.

49. *Polypus of Epiglottis; Spontaneous Separation.*—The following curious case, occurring in Prof. Syme's surgical ward, is related by Dr. DOBIE:—

Christina P., æt. 18, admitted September 30, 1852. Patient states that, about ten days before admission, she injured her throat by swallowing a piece of hard crust; after this, she felt some difficulty and pain in deglutition. About a week ago, she experienced a peculiar sensation in the back of the throat, which led her to believe there was some tumour growing there.

On admission, a distinct tumour can be seen and felt, arising near the base, and on the right edge of the epiglottis. The tumour appears to be pediculated, of the size of a small cherry, and the surface is somewhat irregular and marked with yellowish patches of ulceration. To the touch, its consistence seems to be similar to that of a healthy salivary gland.

October 2, 10 A. M. The tumour was to-day very distinctly seen and felt. She complains that it gives her breath an offensive odour, which is very appreciable. A little after mid-day, Mr. Syme examined the throat, and found that the tumour had disappeared, and no doubt had been swallowed.

The point from which the tumour has become detached can be readily seen, and was touched with the sulphate of copper. She was dismissed quite well a day or two afterwards.—*Monthly Journ. Med. Sci.* Oct. 1853.

OPHTHALMOLOGY.

50. *On Change of Sight as Premonitory of Hard Cataract.*—It occasionally happens that persons who were presbyopic, and have used convex glasses, as they advance in years recover natural vision, or even become near-sighted. Mr. W. WHITE COOPER has recently had the opportunity of studying four cases of this description, and has quite satisfied himself that, in them at least, the change from presbyopic to myopic sight was premonitory of hard cataract.

"I have observed," he says, "that myopic persons, who become affected with cataract, increase the power of their glasses to the very highest numbers, even to No. 14. It is often considered that the need of higher and higher glasses, under these circumstances, is a delusion, and that the mere fact of the vision becoming more and more imperfect, leads the patients to seek increased assistance in stronger glasses; yet, as the highest concave glasses diminish objects to almost microscopic minuteness, it was difficult to believe that they really afforded assistance. Observation has, however, led me to believe that the assistance was not imaginary; and the reason is probably this. In all cases of hard lenticular cataract, the crystalline lens becomes closer and denser in structure, and generally rather flattened in shape; but the flattening is in some cases less in proportion than the increase of density. By this increase of density, the

refractive power is altered, and consequently the focal distance is shortened; so that a myopic eye, which formerly derived sufficient assistance from lenses Nos. 6 or 8, needs Nos. 12 or 14 for reading, or seeing moderately distant objects.

"To an analogous change¹ I refer many of those singular cases in which old persons lay aside their convex presbyopic glasses, being able to do without them, or find themselves under the necessity of using concave or myopic glasses. The increase in density may be sufficient to counteract the changes which had previously diminished the refractive power, and to restore to the eye its natural focal distance; or it may go a little further, and cause the image to be formed in front of the retina, as in near-sighted persons. Such a change in the density is not necessarily attended with so much diminution of the transparency of the lens as to materially interfere with vision, though I believe the sight is always a little impaired, which the patient properly sets down to the account of old age; but, in many cases, the change goes on; the lens becomes shrunken and amber-coloured; and the patient is sooner or later pronounced to have hard cataract.

"The characteristics of the cases which I have seen have been these. A person, about the middle period of life, has taken to glasses, which have been increased in power as years rolled on. He has numbered perhaps seventy summers, when he finds the high powers less agreeable than the lower, which are resumed; but, after a time, they too, strain the eyes. Perhaps glasses are altogether laid aside, and the fortunate individual receives the congratulations of his friends on his renewed juvenility. In some cases, the sight is far from clear, and objects are held near the eyes to be discerned; accidentally, perhaps, he looks through a concave glass of low power, and is agreeably surprised at finding his sight improved. As these symptoms occur in advanced life, the persons may die before other phenomena present themselves, and the true nature of the case may never be discovered. But if the parties live, the sight, sooner or later, becomes little by little obscured, and the characteristic symptoms of hard lenticular cataract are established. I have often been struck with the slow progress of some of these cataracts. During the last ten years I have, from time to time, examined the eyes of a clergyman who consulted me in 1843, for slight imperfection of vision. In his right lens two small striae were then visible; in the left lens there were three; the nature of the case was explained to him; he has taken great care of his eyes, and although there is now a general haze in both lenses, he has sufficiently useful vision to perform his clerical duties. Another patient, a physician, has had cataract fully formed in the left eye for six years, and incipient cataract has existed in the right for nearly the same time; but it has been so stationary that he still reads and writes.

"The formation of cataract, then, may be so gradual that it may have made considerable progress before the patient will admit that his sight is much impaired; I have known patients almost angrily protest that their sight was good—not quite so sharp as it used to be, but still very good—when decided cataracts were plainly visible. The fear of the proposition of an operation may lead them to make the best of matters, but there is much self-deception in many cases.

"In the four last cases of sight changed from presbyopia to myopia, which have fallen under my observation, careful inspection, at intervals of two or three months, has traced the change of structure from the first faint indications to the unmistakable characteristics of hard, lenticular cataract; and, as a general rule, such cases should be carefully watched, for it commonly happens that persons who appear to have recovered their pristine sight in the manner described, are disposed to take liberties with it, and to use their eyes more than is prudent. They should be warned against this; for though art can do little directly to arrest the progress of cataract, congestive action of the eyes may be

¹ Since this paper was written, I have conversed with a distinguished Viennese ophthalmologist, Dr. Meyer, and find that he had arrived at the same conclusions as myself, as to the nature of the cases in question.

prevented by the patient abstaining from over exertion of those organs, especially by artificial light; and he ought to be careful so to arrange his position, when reading or writing, that the object on which he is engaged should be well illuminated, but the eyes kept in the shade, and protected from the injurious stimulus of heat and glare. He should always use the blackest ink, write a bold hand, and, above all, avoid reading small and indistinct type."—*Assoc. Med. Journ.* Nov. 11, 1853.

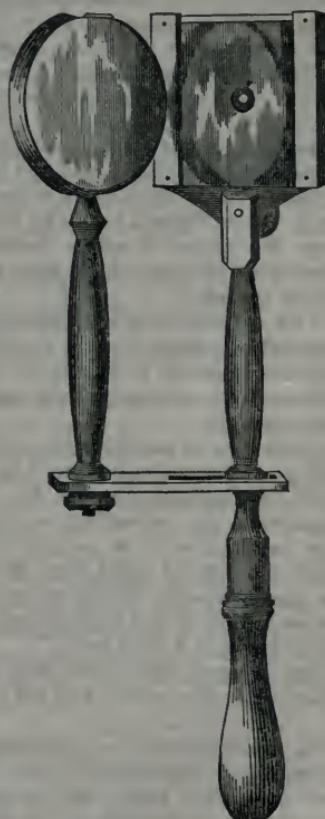
51. *Coccius's Ophthalmoscope.*—MR. T. SPENCER WELLS describes (*Med. Times and Gaz.* Sept. 10, 1853) an ophthalmoscope recently invented by Coccius, of Leipsic.

"This instrument consists, as may be seen by the accompanying wood-cut, of a perforated mirror and a lens. The rays of light from a lamp are concentrated by the lens, and thrown on the mirror. This is held before the eye to be examined, and the rays are thrown through the pupil on to the retina. The unabsorbed rays return in the same direction, and are received by the eye of the observer, which is behind the mirror, at the spot where it is perforated.

"In a healthy eye, the part behind the pupil is absolutely dark. Even when the lens and vitreous humour are clear and transparent, no ordinary examination, even when the pupil is dilated, can afford any information as to the appearance of the retina. Without some artificial assistance, we cannot illuminate the retina and also see the illuminated part. The rays of light return from the retina in the same direction as they were thrown on to it, so that we cannot bring our eyes into the direction of the rays of light returning from the retina without at the same time cutting off the supply of those rays. But, by the aid of this instrument of Coccius, the rays are reflected at an angle upon the mirror, are then conveyed to a focus on the retina by the media of the eye, and the unabsorbed rays, on leaving the eye, return to the mirror whence they came, and are also received by the eye of the observer.

"When the instrument is to be used, the pupil is dilated by atropia, if not naturally dilated. The patient is seated in a dark room, near the corner of a table, on which a bright lamp is placed at the level of the eye. The surgeon sits before the patient, and screens the face of the latter by an upright shade, so that the eye is the only illuminated part. Holding the mirror opposite the eye, he then adapts the lens in such a manner that a bright concentrated light is seen to fall on the pupil. Then he applies his own eye to the back of the mirror. The instrument is held at different distances from the eye until a clear view is obtained, and then the patient, by moving his eye in different directions, exposes the different parts of the retina to view. This appears rather difficult at first, but a very little practice enables one to find the proper position of the instrument. When the retina is not clearly seen, although the pupil is well illuminated, a concave glass is interposed between the mirror and the observed eye, by the hand not employed in holding the instrument.

"Examination of the retina in this manner is very interesting. Bloodvessels are first distinctly seen ramifying upon it, and, by tracing them from the smaller



branches to the larger roots, we arrive at the point where the optic nerve enters. This differs in appearance from the rest of the background of the eye, as it is not covered by pigment, or a network of vessels, but a sort of transverse section of the nerve here lies open to view, with a few fine vessels passing through it. The arteries and veins of the retina enter and leave near the inner part. Sometimes a portion of the vessels may be seen concealed in the substance of the nerve itself, showing that this substance is transparent during life. The two orders of vessels are distinguishable from each other, as the blood is of a brighter colour in the arteries, and the walls of the latter and their first subdivisions are thicker than those of the veins. Pulsation cannot be distinctly recognized, so far as I have been able to discern, though some observers fancy they can see it. The first divisions of the vessels border the inner side of the optic nerve, and then extend all over the field of the retina. The appearance of the red vessels on the illuminated base is really beautiful. Helmholtz remarks that, close to the inner side of the nerve, he has always remarked a small semilunar strip of shadow, which appears to be from a fold of the retina. This appearance is universal, and is doubtless produced by the plica semilunaris. In most parts of the eye the base appears of a yellowish-red, of a brighter red around the optic nerve, and darker the further we pass from it; not of an equal colour, but as if with small darker patches. The point of direct vision (macula lutea, or foramen of Soemmering) has a peculiar appearance. The eye is directed exactly upon the ray of light, and the retina is seen at that spot to be darker, grayish-yellow, without admixture of red; and no traces of capillary vessels can be seen on it. It is difficult to make this out without practice, because the reflection from the cornea is apt to destroy it; while this reflection does not interfere when the eye is turned to either side for the examination of the lateral portions of the retina.

"As an auxiliary in diagnosis, the ophthalmoscope must prove very valuable, as anything opaque before the retina must mask its vessels. Cloudiness of the vitreous humour, according to its degree, will obscure the view of the vessels of the retina. Opacity of the lens, or of its capsule, would, of course, act in the same manner.

"But it is in assisting the study of the pathology of amaurosis that the chief utility of the instrument will be found."

Mr. Wells further states that "the instrument of Helmholtz is preferable for examining the refracting media, and it possesses the great advantage that it may be used with an undilated pupil without producing much contraction; while the intense light from Kotzius's instrument requires full dilatation, or the pupil becomes closely contracted. But, for the grand object of examining the condition of the retina itself, this latter instrument is very far superior to any other that I have seen."

The intense light from this instrument may, in some cases, we fear, prove injurious to the retina, and we must therefore urge great caution in its use.

52. *Mydriasis and nearly complete Blindness of a month's duration, cured by Expulsion of Intestinal Worms.* By M. FALOT.—That extreme dilatation or immobility of the pupil, and in consequence blindness, complete or partial, is not always dependent on an amaurotic affection, is proved by the following case:—

B—, aged 7, has never suffered from ill health since his first dentition, which was reported to have been very severe; he is of a lymphatic temperament, pale and haggard, his appetite irregular, and he is subject to diarrhoea.

In consequence of indigestion, he was seized, during the night of the 12th of September, 1852, with subsultus tendinum, stiffness of the extremities, alternate tremors of one or several parts of the body, grinding of the teeth, slight delirium. Eight leeches to the mastoid process, assafœtida injection, antispasmodic draught, and poultices to the lower extremities.

The next day, early in the morning, his parents sent for me, as their son had become blind. The face, which was yesterday pale, had now become livid, especially the lips; frontal headache; pulse small and weak; body bathed in sweat; tongue white and moist; belly tympanitic; immobility and enormous

irregular dilatation of both pupils, which are as large as the cornea, so that the ciliary processes of the left eye can be plainly seen. The child has recovered consciousness, and complains that he can no longer see objects distinctly. Under the impression that this affection of the sight was caused by the preceding convulsive attack, I directed the renewed application of leeches, two laxative injections, and sinapisms.

In the evening there was slight epistaxis; the cerebral symptoms have disappeared; weakness; slight fever; countenance pale and lead coloured; some mucous vomiting, and nearly complete blindness. Blister to left arm. Sinapisms and injections.

14th. Passed a sleepless night; the pupils are still much dilated; the child (a very intelligent boy) is very uneasy with regard to his sight; no stool since his illness; belly tense, and frequent muscular tremors. Blister to nape; oily injections; mustard foot-bath, and a decoction of helminthocorton (*Corsican moss*); forty-five grammes to one hundred grammes of milk.

15th. Pretty quiet night; three yellow and fetid stools; vision in the same state. The patient and his parents inconsolable.

16th, 17th, 18th. Same condition. Revulsives, irritating frictions, ammoniacal vapour, cauterization with nitrate of silver to various points of the circumference of both corneaæ alternately.

20th. Not knowing whether I had to deal with a commencing amaurosis, or mydriasis, symptomatic of a gastric or verminous condition, I made a pinhole in a piece of card, and having put the small opening before the eyes of the patient, he could distinguish large objects with more distinctness. Same treatment to be continued.

23d. I persisted for some days with the cauterization around the cornea. Revulsives, acetic lotions, and vermifuge laxatives for the constipation, which was not usual with the child, as he was naturally very free.

28th. He vomited the food taken in the evening, and expelled two lumbrixi by the mouth.

29th. Ten hours after, having taken four doses, of four grains each, of calomel, he expelled, in three motions, twenty-eight other worms by the anus.

At the end of six days he again expelled, by the anus, four of these entozoa, always by means of calomel. The dilatation insensibly diminished, and in a month after the sight had returned to its usual state.—*Dublin Medical Press*, Dec. 28, 1853, from *Revue Thérapeutique du Midi*.

53. *Uraemic Blindness and Dyspnæa*. By W. H. WALSHE, M. D.—Mr. —, aged twenty-nine, widower, leading a steady and quiet life, has generally enjoyed good health. Ten years ago, he had a peculiar contraction of the right leg, the tendons feeling stiff in the ham. Three years ago, he was ill for a fortnight with sore throat. He has now been ill for upwards of two months. A fortnight ago, boils commenced to form about his body; one, above the left orbit, was followed by great pain on the spot. All of these boils got well; he felt generally ill and depressed, but was improving, when, ten days ago, he found he could not see as usual; the left eye being decidedly the worse of the two. He had no cephalgia, nor swelling of the face.

Nov. 12. *Present State.* (a) He looks depressed, somewhat stupid; has slept badly for last two nights, without bad dreams; spirits low; temper of late rather morose; inclined to talk to himself. (b) The skin is pale and sallow; he does not perspire; there is no skin affection of any kind; no distinct swelling about eyelids; he says they are stiff; no swelling of ankles. (c) The legs are weak, about equally so; if any difference, the left is the worse (*vide k*). (d) Tongue tolerably clean; bowels open from medicine; anorexia. (e) Resonance is good under clavicles; no chest symptoms. (f) Heart's action is rather too extensively felt; first sound at base and apex rather too clear and full; no murmur at heart (pulse 76); strong venous hum in neck. (g) No swollen lymphatic glands. (h) Urinary organs patient declares to be in good order; three years ago, however, he had haematuria, for which he knew no cause. (k) Moderate headache at vertex; no vertigo; no tinnitus; no peculiar sensations of any kind in head; intellect perfectly clear; some stiffness in joints of

upper extremities, shoulders most, right and left the same ; he squeezes awkwardly with left hand, but about as forcibly as with right ; no deviation of tongue ; articulation quite distinct ; no peculiar sensations in limbs. (*l*) No convulsive movements anywhere. (*m*) Pupils medium sized, round ; contract immediately and gently well under light (merely that of the room) ; then expand a little ; the action is not distinctly different on the two sides ; no opacity in either eye ; no amaurotic look ; no photopsia ; no muscae ; and no spontaneous pain in the eyeballs ; no photophobia, but is pained, he thinks, by continuing the effort to see ; he cannot distinguish moderate-sized objects at opposite side of the street ; cannot read small print at all ; sees better in morning when he gets up, and with strong light ; has never had diplopia.

Here, then, was an anaemic person, suffering from boils (which were, as is well known, epidemic at the time), but caring neither for his anaemia, nor his boils, nor the general disturbance of health accompanying these, but solely anxious about the sudden and increasing failure of his sight.

Were the eyes themselves diseased ? No opacity could be discovered in either ; membranes and humours appeared perfectly transparent. That the cornea, chambers, lens, and its capsule, were free from any change sufficient to explain the symptoms, was, in fact, unquestionable. Again, disease of the retina, producing blindness, if acute, would have been attended with local symptoms, weight and fulness in the eyeball, with throbbing pain, photopsia, change of colour of the irides, &c., and with fever—conditions all of them wanting here. Chronic retinitis is attended with morbid sensibility to light, which our patient did not complain of. It is so infinitely unlikely that tumours connected with the deep-seated tissues of the eye should form simultaneously in both organs, that the idea of their existence here might, almost without examining the globes themselves, be rejected. Disease of the optic nerves, or their sheaths, enlarges the pupil, paralyzes the iris, and very, very rarely attacks both sides simultaneously ; it was, therefore, not the cause of the blindness here.

Nor could the case be supposed one of idiopathic amaurosis. The eyes had not the amaurotic look nor expression ; there was no lustre of their surface, no rolling or unsteady movements of the eyeballs, and none of the peculiar vacant gaze of that affection. This patient, on the contrary, directing the axes of the eyes appropriately, *looked as if he could see well*.

The least reflection on the condition of the patient's motor and intellectual faculties satisfies us that none of the ordinary affections of the brain could have existed here. Neither meningitis, simple or tuberculous, nor hemorrhage, produce blindness of the type before us ; and, though both acute and chronic softening do actually cause impairment of vision on one, or even on both sides, blindness never constitutes the prominent symptom it did here ; besides, all other evidences of softening were deficient.

But it was not so easy to exclude tumour of the encephalon. For not only has blindness, more or less complete, been a frequent symptom in cases of intracranial morbid growth, but actually, next to cephalgia, their most, or nearly their most, frequent symptom. This is true of tumours of the cerebrum, cerebellum, pons, and pituitary gland ; a circumstance showing, by the by, the vainness of the attempts to diagnosticate the seat of a cerebral tumour, solely through the perversion of special senses. It is true that there was no cephalgia of note in this instance, but cephalgia may be absent from first to last, even in protracted cases ; and we might have been at the commencing period of the formation, at which period, there is every reason to believe, if not to be absolutely certain, the head is often free from pain. Intra-cranial tumour was, therefore, by possibility the cause of the failure of vision in this patient.

But, again, there are cases on record, tending to show that injuries to the supra-orbital nerve may produce obscurity of vision, nay, complete blindness. It is true that some observers hold that, in all such alleged cases, there has in point of fact been concussion of, or other injury to, the eyeball itself ; but the weight of the evidence seems to me decidedly in favour of injury to the branch of the fifth nerve named sufficing to impair vision. Now the patient had had no traumatic mischief done to his eyebrows, it is certain ; but he had had a boil

there, the source of much pain and irritation; and it seemed an admissible hypothesis that the local inflammation might have acted the part of a wound in the spot. It is alleged that the nerve of one side only being implicated, the eye of the other has suffered by sympathy.

It was certain the patient had not been taking any of the drugs—belladonna, aconite, stramonium, &c.—which injure sight.¹ Besides, the pupils were not dilated.

Hæmic or blood diseases (I use the adjective as more euphonious) are many of them, more or less constantly, attended with perverted vision. Now our patient was anæmic to a high degree; but I could not admit this to be the cause of his blindness; for, though impairment and perversion of sight often attend this state, they never, as far as I know, do so to the extent observed here; they never constitute the prominent enduring symptoms of the state. But anæmia might here be fairly taxed with increasing the blindness, though essentially otherwise caused.

But however plausible it might have appeared to refer the imperfect sight either to encephalic tumour, or to implication of the frontal nerve, examination of the urine, a few days later, furnished a much more satisfactory clue to the symptom. The fluid was highly albuminous. We now ascertained from relatives that the daily amount was small (a fact previously denied by the patient). A few days later, the eyelids were distinctly, though very slightly, œdematosus; the ankles remained free from dropsy throughout. The most active measures failed to produce any secretion from the skin, which continued to the last day dry and harsh.

Between this period and that of the patient's death, on the 29th of November, one or two circumstances occurred worthy of note. The hydrochloric acid test succeeded strikingly; the expired air gave thick opaque fumes; but in this instance, as in many we have seen in the wards together, the breath was of strongly urinous odour—a state quite as significant of uræmia, as an affirmative result by Frerichs's test. For several days before his decease, the patient had *uræmic dyspnoea*, as I would call it—a dyspnoea evidently depending on the morbid state of the blood; for there was no pulmonary nor cardiac affection to explain it; the percussion sound was excellent everywhere; there was no rhonchus, no serious alteration of the respiration sound, and no cardiac disease. The pulse-respiration ratio averaged, during this time, 3:1, both pulse and respiration being, absolutely speaking, very frequent, namely, 120 and 40. But there was an amount of breathing distress materially greater than attends a respiration of forty per minute; to this the poisoned blood was the apparent clue.

Now, remarkably enough, this patient remained, almost to the last moment, free from the more ordinary effects of uræmic poisoning. The brain and cord gave no sign of suffering; his intellect continued clear; there was neither delirium nor sopor; and convulsions did not occur. This dissection of the effects of the kind of poisoning in question is not uncommon; the brain and vision may alone be affected; or the vision, the functions of the spinal cord, and those of the brain may suffer simultaneously.—*Assoc. Med. Journ.* Nov. 18, 1853.

54. *Effusion of Blood into the Vitreous Chamber of the Eye.*—Mr. JAMES DIXON records (*Lancet*, Jan. 28, 1854) four cases of this rare affection.

CASE I.—William L—, a clerk, aged 16, of fair complexion, and rather slender make, came to me, Nov. 19, 1844, complaining of almost total blindness of the left eye, which, he said, had come on suddenly about two months previously. Vision was limited to the perception of well-lighted surfaces; a sheet of paper appeared “like a whitish cloud;” dark objects, even of large size, were not seen at all. The iris of the right eye, the sight of which was perfect, was light blue; that of the left had a greenish tint, the pupil being rather sluggish in its movements, but still influenced by exposure to light. Beyond these slight changes in the iris, I could detect nothing abnormal about the eye until

¹ Perry, U. C. H., Males, vol. ix. p. 105, admitted January 6, 1853, after taking half an ounce of salts of lemon, had considerable deficiency of sight, when seen eighteen hours later.

I dilated the pupil with atropine, and then, on looking attentively into the space beyond, I noticed an indistinct reddish appearance at the lower part of the vitreous chamber. By concentrating light on this spot with a convex glass of one inch focus, a clot of florid blood was distinctly seen, lying just beneath the crystalline lens. I had this patient under observation about two months, during which time no perceptible change took place either in the size of the clot or the brightness of its colour; and three months later, I learned that the sight of the eye was still unimproved. I could not ascertain that the patient's health had been noticeably out of order at the time the loss of vision occurred, nor could he recollect having suffered pain either in the head or eye.

CASE II.—Abraham H—, aged 20, came to me from the country, on the 3d of June, 1847, in consequence of having discovered, seven weeks previously, that he could not discern objects with the left eye, mere perception of direct light being retained. He had suffered from iritis in the right eye more than a year ago, and there were several points of old adhesion between the iris and capsule, but the sight was still pretty good. It was by closing this eye that he accidentally discovered the loss of sight in the other. He had had no blow, nor could he remember having suffered any pain in the left eye, the appearance of which was perfectly healthy, and the iris active. I dilated the pupil with atropine, and then found that nearly all the back part of the vitreous chamber was occupied by a bright red clot, the greater portion of which was fixed, but the rest loose, and floating to and fro in the vitreous humour. As the patient returned to the country after a second visit, I had no opportunity of watching the progress of the case.

CASE III.—Mary S—, aged 35, a sickly, anxious-looking woman, applied to me in May, 1845, on account of almost total blindness of the right eye. The only morbid appearance I detected on her first visit was a sluggishness in the movements of the iris, the pupil being permanently more dilated than in the left eye. A very indistinct reddish reflection from the vitreous chamber induced me to apply atropine, and as soon as the pupil was freely dilated, a clot of blood was seen lying at the bottom of the eye, part being fixed, and part floating loosely in the vitreous body, as the eye was turned from side to side. Three years previously the patient had suffered much mental distress from the death of her husband and three children in rapid succession. About the same time she was troubled with a cough, which increased in violence, and was sometimes attended with spitting of blood. In the spring of 1844 the sight of the right eye began to grow dim, and in the course of six months it was reduced to mere perception of light. Frequent headache, and an appearance of black spots before the eye, accompanied the failure of sight.

CASE IV.—Mrs. C—, aged 51, consulted me Oct. 9, 1849. About the beginning of August she had been attacked with intense neuralgia throughout the fifth nerve on the right side, which, for three nights, almost deprived her of sleep. Mustard poultices repeatedly applied to the side of the face relieved the pain considerably. After this attack she used to feel languid, and by the evening was sometimes quite fatigued; but in other respects she seemed pretty well, her appetite being good, and bowels regular. Towards the end of August she used to notice, when in bed, bright colours passing in continuous streams before the right eye; by day she saw well with it, and could even read. Two weeks later, on closing the left eye, she found she could only see parts of objects with the right. At the time of her visit to me, her general health was pretty good; she no longer saw colours passing before the right eye, but there was occasionally a dull aching pain in the globe. The left eye exhibited nothing remarkable except that the iris was prominent, and almost in contact with the cornea. The pupil acted, but not very briskly, and the sight was good both for near and distant objects.

In the right eye the sclerotic had a dirty yellowish, or faint olive tint, a little lighter than that seen in the first stage of staining with nitrate of silver. Thinking that the stain might be the remains of ecchymosis, I asked whether there had been any appearance of this eye being "blood-shot;" but she said, "No." The pupil was rather dilated, and unaffected by light. She saw pretty well all objects placed below the level of the eye—even the type on a printed

page was recognized as black lines—and by throwing the head well back she could see a name across the street as a white streak on a black ground. On looking at a person's face on a level with hers, she only saw the chin, all the other features being hidden by a dark cloud which seemed always hanging over her head.¹

In a certain light I noticed a dull red glow from the bottom of the eye. I fully dilated the pupil with atropine, and then a clot of blood became distinctly visible behind the lens, at the bottom of the vitreous chamber. The mass was hemispherical, and its summit, which rose as high as the middle of the pupil, had a slightly grayish tint, while its anterior slope was of a decided red. It appeared to consist of an effusion of blood beneath the retina, which being thereby raised from its natural position, formed a thin grayish investment to the smooth, rounded surface of the clot.

55. Cancerous Tumour of Conjunctiva; Extirpation of Eye.—Dr. W. M. DOBIE relates the following case which occurred in the surgical ward of the Royal Infirmary, under the care of Prof. Syme:—

John D., æt. 50, Galashiels, admitted November 3, 1852, on account of a tumour, about the size of a small bean, growing from the conjunctival surface of his left eye, midway between the external canthus and the junction of the sclerotic with the cornea. The tumour is of a bright red colour, and has a smooth, glistening, lobulated surface. He states that he first observed the tumour about twelve months ago; it was then about the size of a small pea; it had increased nearly to the size it is at present at the end of two months. He then applied to Professor Syme, who expressed his conviction that the nature of the tumour was malignant, and that, in the end, the removal of the eyeball would be requisite. Mr. Syme, however, cut off the tumour, thinking it better, in the meantime, to try the effect of removal before resorting to the more severe procedure. He returned in six weeks, the tumour having again nearly attained the size of a large pea. Caustic was applied by the resident clerk. Six weeks after this, the tumour was removed by Dr. M'Dougall, of Galashiels; and again, in six weeks, this operation was performed for the fourth time by Mr. Walker, who recommended that caustic should be occasionally applied.

Three weeks before his admission, Mr. Mackenzie, of Glasgow, saw the patient, and advised the extirpation of the eyeball. At present, he suffers a good deal of pain in the eye, and the vision of both eyes is considerably affected.

November 10. Mr. Syme removed the eye with a pair of curved scissors. A single point of suture was applied at the external canthus. The cavity of the orbit was stuffed with lint, which at once restrained the hemorrhage. A pad of wet lint, kept in position by a turn of bandage, was applied over the eyelids.

15th. Suppuration being now fully established, the stuffing of lint was removed—this was done with facility. He has no pain in the wound, and the sight of his right eye is much improved.

22d. Discharged quite well.—*Monthly Journ. Med. Sci.* Oct. 1853.

[It is premature, we conceive, to pronounce this patient to be cured. Time must determine this. A representation of the tumour before removal, and of its microscopic appearance is given.—Ed.]

56. Pathological Remarks on the kind of Palpebral Tumour, usually called in England Tarsal Tumour.—Mr. HAYNES WALTON, in a paper read before the Royal Medical and Chirurgical Society (Jan. 24, 1854), after pointing out the very obscure manner in which the subject of tumours of the ocular appendages is treated by writers, gave a description of the external characteristics of such tumours, and proceeded to describe the intimate structure of one that he had removed from the living body. It consisted, externally, of a dense fibrous cyst, continuous with the fibrous tissue of the lid; within this was a layer of fibro-plastic matter, soft, pink, and very vascular, composed of fibro-plastic cells, with very little intercellular matter; within this, a thin pellucid cyst, con-

¹ This affords an illustration of the well-known fact that the lower part of an object is perceived by the upper part of the retina, and *vice versa*.

taining a puriform fluid, with epithelial cells, loaded with oil, and in the centre a perfectly round pellet of sebaceous matter. In conclusion, the author suggests the following order of development: 1. The formation within a Meibomian follicle of a pellet of hard sebaceous matter. 2. The secretion of a more copious epithelium and fluid matter around. 3. The addition of fibro-plastic matter around the obstructed gland, follicle distending the loculus of fibrous membrane into a cyst. This, with frequent dissections of other tumours, were illustrated by accurate drawings. The author suggested the name of Meibomian tumour to be applied. In a postscript to his paper, Mr. Walton recommends, that when such tumours take an outward course, it is better to open them, squeeze out the contents, and extract the cyst. If the incision be made horizontally, there is no danger of a scar.—*Med. Times and Gaz.* Feb. 4, 1854.

MIDWIFERY.

57. *An Account of Seventeen Cases of Parturition in which Chloroform was inhaled with pernicious effects.*—Dr. ROBERT LEE read before the Royal Medical and Chirurgical Society an account of seventeen cases of parturition in which chloroform was inhaled with pernicious effects. In the cases related, the injurious effects of the inhalation of chloroform were as follows: In seven cases, insanity and great cerebral disturbance followed its exhibition. The use of the forceps was rendered necessary in five cases. In two, the contractions of the uterus were arrested, and the operation of craniotomy was performed. Peritonitis or phlebitis ensued in four cases. Epilepsy or dangerous fits of syncope supervened in two instances. Many analogous cases had been confided to the author by friends; and public rumour swelled the size of the chapter of accidents; but he wished merely to give accounts of those which had come under his own observation. The author strongly animadverted upon the levity and thoughtlessness which had accompanied the use of this subtle and dangerous poison. Soon after its discovery, before the amount of its power, and even its composition, had been fully understood, he had been horrified by the announcement of its application to midwifery, and he then prophesied that deplorable results would ensue—a prognostication which experience had unhappily proved to be correct. It was natural that women, doomed to bring forth their young in pain and sorrow, should seek every means by which they might palliate the anguish they suffer; and instances related in which the process of parturition had been effected without pain, served to render nugatory the unwelcome admonitions of those who pointed to the evils that might occur. The author expressed his opinion, that the most serious effects which arose from the inhalation of this agent, were first, languid and inefficient uterine contractions; secondly, a greater susceptibility to the risks that arose from inflammation and fever. In spite of the fact, that grave and experienced physicians had expressed their concurrence with the author's views, yet the question whether chloroform should be inhaled had become almost extra-professional; as silly and ignorant women of fashion chose to set the example of using it, the cause of science and humanity thus being in the hands of the most weak and frivolous portion of the community; and, as there was a systematic concealment of the truth by the physicians who used it, he feared that young and inexperienced mothers would still be lured to their destruction. In conclusion, the author expressed a hope that his essay might tend to rescue the profession from the dominion of an ignominious and disgraceful practice.

Dr. Snow regretted that Dr. Lee had indulged in such severe remarks as those which occupied the concluding portion of his paper, more particularly as he felt great admiration for the talent displayed in the essay, and great respect for the honest and manly spirit that caused the author to attack anything which he considered injurious either to a patient under treatment, or to the cause of science generally. Dr. Lee certainly had related the history of several distress-

ing cases; but, in his (Dr. Snow's) opinion, not one of the symptoms described could be referable to the exhibition of chloroform. Dr. Lee must have known that chloroform was a most volatile spirit, and that half an hour after its application no traces of it could be found in the system; and yet, in some of the cases related it was stated, that inflammatory action had arisen two or three, and even as much as fourteen days after labour. How could the evil effects described be laid, with any show of probability, to the noxious influence of chloroform? Some of the symptoms mentioned in the cases might be naturally referred to hysteria. Dr. Lee had stated, that the chloroform checked the uterine contractions; this statement Dr. Snow could contradict, as, in the many cases in which he had superintended its employment, he had continually felt the uterus contracting firmly. The amount of the spirit inhaled in obstetric practice was trifling, compared with that taken during surgical operations. One great benefit derived from its application was, that it tended to do away with the use of laudanum; and Dr. Lee ought to hail this fact with joy, inasmuch as the time that the former drug remained in the system was so short in comparison with the former. In conclusion, Dr. Snow expressed his opinion, that, notwithstanding the recorded cases of death having occurred from the use of chloroform, which now amounted altogether to about thirty-seven, it had been the means of saving many lives, by preventing nervous excitability consequent upon severe operations.

Dr. Gream, with great respect to the learning of the author of the paper, was of opinion that he had, in this, as in many other cases, preferred antiquated measures to modern discoveries, merely because the latter were modern; and had given a list of extreme cases. He entered into the question, as to whether uterine contraction was checked by the inhalation of chloroform; and stated, that when a large dose was given, it did so favourably when the patient was exhausted by a long and painful labour. He announced that he was only a recent convert to the practice of giving ether or chloroform in midwifery.

Dr. Merriman related a case where chloroform was administered during labour. Pain ceased, and he returned home for a short time. On being called again to see the patient, after a lapse of two hours, having been told that she was very ill, he was unable to find any trace of the child; and the systemic effect was so violent, that it was long before labour recommenced, the uterus having been temporarily paralyzed. She never recovered from the effects of the narcotic, and was finally removed to a lunatic asylum. This case had so alarmed him, that he had never since given his assent to the employment of chloroform.

Dr. Chowne said, the subject had been so talked about publicly, that it had become extra-professional. He expatiated lengthily upon the history of chloroform, remarking that, in his opinion, it had been received as a professional remedy without sufficient inquiry having been made into its properties. He instanced as an example, the first check given to its unconditional application, which was owing to a death which had occurred when the patient was undergoing the operation of having a tooth removed. Disease of the heart having been discovered in that case, a rule was laid down that chloroform should not be administered when an ailment of that organ was existing. Dr. Chowne gave some more instances in illustration of his opinion, and finally referred to Dr. Merriman's patient, whom he had seen; and stated, that the ergot of rye had been administered after the chloroform, without having any action on the uterus.

Mr. Carter said, that seventeen cases on which to found a decided opinion whether chloroform was beneficial or otherwise in midwifery, were not enough. He had frequently used it himself with no evil results, except in two cases, in one of which the patient was in a very asthenical condition. In the other case, death ensued while the woman was under operation. He reminded Dr. Lee that it was frequently used in country practice.

Mr. Fergusson stated, that being engaged exclusively in surgical practice, he was unable to offer any opposition to Dr. Lee and his statements; yet he wished to know how it was, that these terrible results described, of insanity, phlebitis, and prolonged syncope, did not occur after the inhalation of chloro-

form during surgical operations. He considered that Dr. Chowne had not drawn a sufficient distinction between surgical and obstetrical practice, as regards the use of this narcotic. He could not understand how paralysis of the uterus could be caused by chloroform, when faeces and urine were often forcibly expelled when the patient was under its influence, thus showing that it does not destroy involuntary muscular action. He expressed his opinion, that our experience in England of the good or evil effects of chloroform was far too limited for a decided opinion to be given on the subject; and referred Dr. Lee to the extensive use that is made of it with beneficial results in the United States.

Dr. Lee, in reply, stated that there was a vast difference between the birth of a child and the extraction of a tooth, or a stone from the bladder, or any other surgical operation; the latter being dependent upon external manual action, the former being a work of nature, dependent upon nervous influence. The child is expelled from the uterus by regular contractions, and the exhibition of chloroform stops this action, as he had seen and as he had heard from competent persons, who had attended cases where it had been administered. Moreover, he wished to know what was the dose of the drug that should be used. It was a pretence, merely to sprinkle a few drops of the liquid upon a handkerchief, and hold it over a patient's nose—a process which he designated as "chloroform à la Reine." And when the forceps were necessary, how could the medical attendant apply them with any safety when the woman was lying writhing about on the bed in convulsions following the use of this deleterious compound? No—woman was to bring forth her young in pain and with sorrow. This was a Divine ordinance, doubtless founded with a wise and merciful intention; and he considered that the continuance of the discreditable and cowardly practice of seeking relief from a necessary suffering, by resorting to such measures as he was combating, would be fraught with danger to her, not only physically, but also morally.

The society adjourned at the usual hour.—*Med. Times and Gaz.*

58. *Galvanism as an Obstetric Agent.*—Dr. THOMAS RADFORD states (*Lancet*, Nov. 26, 1853) that he has successfully employed galvanism in the following description of cases:—

1. In cases of tedious labour, arising from uterine inertia.
2. In cases of accidental hemorrhage, either before or after the rupture of the membranes, and especially when exhaustion from loss of blood exists.
3. In cases of "placenta praevia," in which the practice of detaching the placenta is adopted, and the vital powers are greatly depressed.
4. In cases of internal flooding before or during labour.
5. In cases of post-partum floodings.
6. In cases of hour-glass, or irregular contraction of the uterus.
7. To originate, *de novo*, uterine action, or in cases in which it is desired to induce premature labour.
8. In cases of abortion, when the indications show the necessity, or justify the expulsion of the ovum.
9. In cases of asphyxia in infants.

Galvanism is especially advantageous as a general stimulant in all those cases in which the vital powers are extremely depressed from loss of blood. Its beneficial effects are to be observed in the change of the countenance, restoring an animated expression; in its influence on the heart and arteries; in changing the character of respiration; and its warming influence on the general surface. I have several times observed, in cases in which other powerful stimulants have failed to produce any beneficial effects, the most decided advantage accrues after its application.

I have never observed that the child, in utero, has been injured by its use, which gives it a great advantage over the administration of secale cornutum, which, in many cases, is destructive of it. "This drug is liable to great deterioration; its operation is not always certain, its failure depending sometimes, perhaps, on its inert qualities, but frequently on a constitutional idiosyncrasy which resists its powers. There are organic states which forbid its use; when

the os uteri is undilated or undilatable, the child being still alive, it ought not to be administered. If, in such a case, it induces powerful tonic contraction of the uterus, it destroys the child. We cannot control or confine its action, and, therefore, it is totally unsuitable to cases in which we only want a limited effect. Again, if exhaustion is an element in the case, it is wholly inapplicable, as we ought not to adopt any means which tend further to depress the vital powers. "The powerful and sanitary influence of galvanism was most decidedly obtained in the preceding case" (referring to a case to which these remarks were appended), "and the great advantage of this agent is, that its effects may be carried to any degree, from first only exciting the uterus so to contract that its diameters are lessened, and that its tissue comes to be applied to the body of the child. These, however, may be at pleasure increased, so as to accomplish the expulsion of the child and placenta. The gradual changes produced upon the uterine tissue were admirably seen in the foregoing case, and also its great power developed by its continued application—to arrest the discharge, expel the child and the placenta, and leave the organ safe from the occurrence of post-partum flooding."—*Extracted from a case detailed in the proceedings of the local branch of the Provincial Medical and Surgical Association, 1847.*

In the above-named case, I used the poles externally, and have before this, and ever since, adopted this mode of application.

59. *Source of Hemorrhage in partial separation of the Placenta.*—Dr. MACKENZIE, in a paper read before the Medical Society of London, Dec. 17, 1853, pointed out that three different opinions prevailed at the present day respecting the anatomical source of hemorrhage in cases of partial separation of the placenta; the first affirming that it was principally or wholly uterine; the second, that it was principally or wholly placental; the third, that it was both uterine and placental. He further directed attention to the fact, that puerperal uterine hemorrhage, whether occurring in connection with partial or entire separation of the placenta, was generally considered to be principally venous, and he quoted passages from the writings of Drs. Simpson, Radford, Murphy, and Lee, in support of this statement. On reflecting upon these circumstances, he was led to believe that some light might be thrown upon the question by ascertaining experimentally the source of hemorrhage in an animal whose placenta, like that of the human female, was both decidual and fetal. A pregnant bitch was accordingly obtained, which had nearly completed the full period of gestation; the uterus was opened, several placentæ were detached, and the following observations made: 1. On separating each placenta, it was found that blood flowed freely and continuously from the denuded uterine surface, increasing with the detachment, while none escaped from the detached portion of the placenta. 2. That the blood which escaped from the uterus was distinctly arterial. 3. On rupturing a placenta while still partially adherent to the uterus, that a small quantity of dark venous blood escaped from the torn part. Thus it would appear, that in the canine species, the source of hemorrhage in cases in which the placenta is partially detached is exclusively the denuded uterine surface so long as the placenta is entire, that the hemorrhage is of an arterial character, and that a small quantity of dark venous blood escapes from the placenta on being lacerated while still partially adherent to the uterus. The results of this experiment were not, however, deemed conclusive as to the source of hemorrhage in cases of partial separation of the placenta in the human female, on account of the different distribution of the veins in the maternal portion of the canine and human placenta respectively. Their anatomical peculiarities were briefly pointed out; and in the early part of April, 1853, the author had an opportunity of performing a more decisive experiment with the assistance of Dr. Sharpey. In this, the hypogastric arteries of the uterus of a woman who had died of internal hemorrhage during labour, and in whom the placenta was partially adherent, were injected with defibrinated blood, and the organ, as well as the vessels from whence the blood escaped, were carefully noted. It appeared, on injecting the hypogastric artery, that blood escaped freely from the torn utero-placental arteries on the surface of the uterus; that none escaped from the torn uterine veins, or from the detached portion of the

placenta; and it was ascertained, that the blood was not injected with greater force than that of the heart acting under ordinary circumstances. The opposite hypogastric artery was next injected, with the following results: The blood escaped freely from the torn utero-placental arteries on the surface of the uterus; none escaped from the torn utero-placental veins; while, in this case, a small quantity escaped from the detached portion of the placenta contiguous to that which was still adherent. Repeated injections led to no other results; while it was particularly remarked, that the torn utero-placental arteries on the surface of the uterus were free from any plugging previously to being injected. Two things were thus clearly shown from this experiment: 1st. The readiness with which blood escaped from the torn utero-placental arteries when the hypogastrics were injected; and, 2dly. That these arteries had not been plugged by any coagula during life. Such facts, coupled with the results of the previously related experiment, and taken in connection with various clinical circumstances, appeared to the author to afford strong grounds for the belief that the principal source of hemorrhage in cases of partial separation of the placenta was arterial rather than venous, and uterine rather than placental; and he proceeded to consider the data upon which the opposite opinion had been affirmed. In doing so he quoted the following passage from Dr. Simpson's writings, as containing a reference to the several grounds upon which the occurrence of arterial hemorrhage has been denied in cases of partial separation of the placenta. "Uterine hemorrhage, after separation of the placenta," says Dr. Simpson, "in any of the stages of labour is not arterial in its character, because the utero-placental arteries are so long and slender as to become readily closed; 1st, by the tonicity of their coats; 2d, by contraction of the uterine fibres upon them; and, 3d, principally by the changes in their tissues produced by the mechanical rupture of their coats, torn arteries being little, if at all, liable to bleed, and the placenta being separated by a true process of avulsion." With reference to the first statement, that uterine hemorrhage, after separation of the placenta in any of the stages of labour, is not arterial in its character, the author observed that, so far as he was aware, it was one which was not only unsupported by any evidence, but directly at variance with many observations which he and other medical men had made. He referred to cases in which he had distinctly observed that hemorrhage occurring between the birth of the child and the complete separation of the placenta was of an arterial character; and he referred to the fact, that the blood which escaped from the uterus of the bitch when the placenta was detached was of a bright arterial colour. With regard to the second point affirmed, that arterial hemorrhage from the uterus is prevented by the tonicity of the utero-placental arteries, he observed, that, while he believed this to be generally the case in a state of health and tranquillity of the circulation, that, under other circumstances, it might be doubted whether such was the fact. The third doctrine affirmed, that hemorrhage from the utero-placental arteries is prevented by contraction of the uterine fibres upon these vessels as they pass through and amid the uterine structure, was, in the author's opinion, completely invalidated by the well-known fact, that there is often no direct relation between the degree of uterine contraction and the degree or tendency to uterine hemorrhage; and he further appealed to the two following series of facts as being opposed to its correctness: 1st. That in several instances the placenta has been spontaneously or artificially separated from the uterus before the birth of the child, and, consequently, under circumstances in which contraction of the uterus could not take place without any hemorrhage supervening; and, 2dly. that when it has been attached to the os and cervix uteri its separation has been effected, in many cases, without any particular hemorrhage resulting, although it is affirmed by some anatomists that there are few or no contracting fibres in the structure of the os and cervix uteri. The last proposition affirmed, that hemorrhage from the utero-placental arteries is prevented by the changes in their tissues produced by the mechanical rupture of their coats, torn arteries being little or at all liable to bleed; and the placenta being separated by a true process of avulsion, was completely negatived by the author's experiments upon the pregnant bitch, for on detaching the placenta from the uterus, and thereby lacerating or tearing through the

utero-placental arteries, arterial hemorrhage was actually observed to follow; that is to say, having separated the placenta by a true process of avulsion, and thereby having torn across the utero-placental arteries, it was demonstrated that such proceeding was not productive of those changes in their torn coats which are assumed to follow such operation, and by which, it is alleged, arterial hemorrhage is prevented. Upon the whole, it appeared that two things were certain; first, that no necessary relation existed between the degree of hemorrhage, and the degree of separation of the placenta; or, secondly, between the degree of hemorrhage, and the degree of contraction of the uterus: uterine hemorrhage having been variously moderate or excessive under similar degrees of separation of the placenta, and similarly moderate or excessive under the opposite conditions of relaxation and contraction of the uterus. Could it, then, be doubted, that the absence or disposition to uterine hemorrhage depended, in many cases, upon other causes than the anatomical connection of the placenta with the uterus on the one hand, or the contractile mechanism of this organ on the other? Or, further, that these were to be sought for in the occurrence of arterial hemorrhage, and the varying conditions of the utero-placental arteries, as modified by the general condition of the arterial system. Bearing in mind this view of the case, the author maintained, that we could best account for the phenomena of puerperal hemorrhages. We could understand how it might happen, that the tonicity of the arterial system being great, uterine hemorrhage would be prevented when the uterus was most released, and when, consequently, venous hemorrhage would be most liable to occur—that, under the influence of morbid excitement of the heart and arteries, it might be profuse when the uterus was contracted, and when venous hemorrhage would be most effectually prevented; and that it might vary, in different cases, with the same amount of separation of the placenta.

Dr. Crisp was of opinion, that, in cases of partial separation of the placenta, the hemorrhage is not from the denuded uterus, but from the free portion of the placenta. He had been requested to see a case of Mr. Howell's in which serious hemorrhage had followed delivery, and, on examination, observed a portion of partially adherent placenta projecting from the os uteri, and was assured, from the touch, that the blood flowed from that structure. The placenta was entirely removed, and the hemorrhage ceased. He thought that abnormal position of the placenta frequently led to hemorrhage, and that the latter is quite independent of an enfeebled state of system. He attached but little importance to the experiments of Dr. Mackenzie.

Dr. Winn, on the other hand, believed that similar experiments performed on animals would ultimately set the question at rest, and, while agreeing in the author's results so far as to affirm that hemorrhage proceeds from the uterus, he differed with him in believing that the immediate source is the uterine sinuses, and not the uterine arteries. He thought that the distinction between the colour of arterial and venous blood, is sometimes liable to fallacy, since it is possible that the state of extreme nervous excitement of a patient in labour might render the venous blood of a more florid colour. A friend of his had observed, that on drawing blood from the arm of a patient labouring under pneumonia the colour was quite florid.

Dr. Murphy was quite confident, from his own experience, that, whatever may be the immediate source of hemorrhage in these cases, the flow of blood ceases on the entire removal of the placenta. He thought it important to separate these practical facts from any theories. He then referred to the two classes of opinions; the one, held by a section whom he termed the Protectionists, that it proceeds from the uterus; and the other, supported by the reformers, that it flows from the placenta; and believe both to have built their theories upon hypothesis, and not upon experiment. He congratulated the author on having taken a first step in the required direction, and advised him to repeat his experiments again and again. He, however, cautioned him to bear in mind the great difference which exists between vital and dead structures, since, after death, the parts lose their tonicity, and any plugs which may have once been formed remain, and prevent the passage of the injection; but, in the living structures, any new flow of blood may detach the plugs, and permit the vessels

to pour out blood anew. The author had referred to Dr. Gooch's case, in which no hemorrhage occurred, although the uterus remained of large size; and thought that so exceptional a circumstance could not support the deduction—that, therefore, the contraction of the uterus exercised no influence over the flow of blood.

Mr. Clark had assisted the author in his experiments, and bore testimony to the truthfulness of his descriptions, and the fairness of his deductions. He illustrated the latter by referring to those cases of post-partum hemorrhage in which the flow of blood begins long after the placenta has been expelled; and also by stating that, as the direction of the current is from the placenta to the uterine sinuses, the latter can supply but little, if any, blood in such cases.

Dr. Snow Beck was prepared to defend each of the author's opinions *seriatim*; but stated, that the author's facts might be admitted and referred to apart from his deductions. He did not think that the uterine veins could be the sources of hemorrhage, and had met with several cases of partially detached placenta, in which the hemorrhage did not cease on perfect separation of that organ. He also had met with a case so far resembling one mentioned by the author, that the colour of the blood was distinctly florid, and the source, as he believed, arterial, and the hemorrhage in that case diminished or increased with the state of contractility of the organ. He would make a distinction between the contractility of the uterus as a whole, and that of the walls of the organ, and believed that the flow of blood through the vessels is rather due to the latter circumstance. This state is induced when the uterus is manipulated either within or without; and in those instances in which the hemorrhage was arrested on detachment of the placenta, the arrest might have been due solely to the contraction induced by the manipulation.—*Med. Times and Gaz.* Dec. 24, 1853.

60. *Retroversion of the Uterus, irreducible; Pregnancy; Death; Autopsy.*—ISAAC B. BROWN communicated the following case to the Royal Medical and Chirurgical Society, Jan. 24, 1854:—

The subject of this case was a young woman, aged twenty, of delicate appearance, who first suffered from prolapsus uteri, brought on by lifting a heavy weight, but which was relieved by a bandage, and from which she appeared to suffer no inconvenience. She became pregnant, and, increasing in size, she first sought medical relief from the difficulty she experienced in emptying the bladder, and then only by great straining, passing but small quantities, suffering, however, in the interim, from incontinence of urine. She was admitted into St. Mary's Hospital; and, on examination, the author found the anus very open and the rectum protruding, as in a bad case of prolapsus ani; the perineum distended and tense, and the labia partly open, through which an oviform body was discernible. On passing the finger within the labia, a large tumour was felt behind the posterior wall of the vagina, and on exploration by the rectum, the tumour was felt anterior to it. The whole pelvic cavity was filled with the tumour. The bladder being first emptied, two fingers of the right hand were passed under the arch of the pubis to the brim of the pelvis, and then the os uteri was felt pressing the neck of the bladder firmly against the pubis, the posterior lip of the os being in this case inferior. The movements of the foetus were distinctly felt. The urgency of the symptoms which rapidly followed her admission into the hospital precluded all hope from surgical interference. Vomiting of a dark grumous matter came on; she rapidly sank, and died the third day after admission. On a *post-mortem* examination, the peritoneal surfaces indicated considerable inflammatory action; the bladder was much dilated and flattened, adherent anteriorly to the abdominal walls, and contained some fetid ammoniacal urine; the mucous membrane appeared disorganized. The intestines being removed, the uterus was found occupying the pelvic cavity, to which it was completely moulded in its retroverted condition, with its fundus pressing against the posterior wall of the vagina and sacrum, and the os, high up behind the arch of the pubis, in firm contact with the neck of the bladder. A foetus of five months, with breech presentation, was found within the cavity of the uterus. The author concluded the paper with some practical observations on the treatment of such cases.

Mr. Streeter said it was singular that not a single case of retroversion of the uterus had been placed on record in the *Transactions* of the Society. The affection, however, was well known to all well-informed accoucheurs, since it had been figured by Dr. William Hunter in his 26th plate. The possibility of its continuance till the full period of gestation, and of delivery by the natural efforts with safety to the mother, had been established by Dr. Merriman, in the sixteenth volume of the *Medical and Physical Journal*, in 1806, by the publication of two cases; and where, indeed, the whole subject was ably discussed. He had risen, however, not so much to comment on the subject, as to place on record another case of safe delivery at the full term, and thus add another to the data already recorded for guidance in these embarrassing and difficult cases. It occurred in the practice of Mr. Nicholas Stone, of Mayfield, Sussex, one of the contemporaries and earliest pupils of Astley Cooper. At the patriarchal age of eighty-six he writes the particulars: "The ease to which Mr. J. Streeter refers, made such an impression upon my mind at the time it occurred, that I believe I shall never forget it. It must have been more than fifty years ago, but I have a vivid recollection of its particulars. I made an examination, and found the head of the child occupying the whole pelvis, and resting on the perineum. Something peculiar intervened between my finger and the head of the child. In consequence of this, I sat down for some minutes to consider what the case could be, and then made a second examination, and found that I could not pass my finger round the head towards the rectum. I then again considered the case, and upon a third examination, passed my finger by the child's head to the pubes, where I discovered the os uteri and the membranes pressing on it. I found the membranes, upon the return of the pain, pushed down, and to my surprise, felt one foot of the child presenting; the head receded, and I delivered the child by the feet. The woman was deformed, and had had children before—how many I do not recollect. Although deformed, the pelvis was capacious, as there was no difficulty in the delivery. The child lived, and the woman did well." Other cases were to be found in Moreau's *Traité d'Accouchement*, and Dr. Bedford's translation of Chailley, and one in Sabatier, which proved fatal from mischief to the bladder. With reference to the practical suggestions in the case read to the Society, he could not sit down without remarking that the tenor of the cases already recorded, appeared to show that the making an incision into the fundus of the uterus was a very questionable proceeding.

Dr. Copland remarked that the extraordinary enlargement of the bladder in Mr. Brown's case, and the adhesions of the pelvic viscera, took it out of the category of the usual cases of retroversion of the uterus.

Mr. I. B. Brown said, that the observations and cases recorded by the last speaker did not bear upon the case which he had placed before the Society; for in Mr. Streeter's case there was sufficient pelvic space to allow the foetus to grow to the full period, whereas in this case the pressure on the pelvic viscera was so great as not only to destroy the functions of the bladder, but also to produce organic disease of that viscous; and, again, the pressure on the rectum was so great as to destroy its functions, and then the patient actually died from these causes. He (Mr. Brown) intended, when making his practical remarks, to point out the importance of doing everything, even to puncturing the uterus, and drawing off the liquor amnii, that could enable the surgeon to replace the uterus beyond the promontory of the sacrum, and to keep it there by restraining the patient to the position described in the paper. He observed, that if death were not feared, it was certain that extensive disease must be anticipated in some of the pelvic viscera by the long-continued impactment of the impregnated uterus; and, therefore, it was of the highest importance to attempt at the earliest possible period the reduction of the retroversion. He said that reduction in this case was impossible even at the *post mortem* examination, so firm was the impactment.

[A very interesting case of retroversion of the uterus, in which reduction was impossible even after death, is recorded, by Professor C. D. Meigs, in the No. of this Journal for October 1853, p. 337.—ED.]

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

61. *Retention of a Dead Fœtus.*—Dr. PICKETT, of Great Barrington, Mass., relates the following case, which is of some interest in medical jurisprudence:—

I was called to Mrs. R., of Stockbridge, whom I found in labour, and which lasted some six hours. This, for her, was rather severe, but she was safely delivered of a large, healthy child, apparently at the full time. While examining for the placenta, I discovered something had apparently ossified. The placenta soon passed off and with it this apparently foreign substance, which proved to be a dead and partially decomposed fœtus, of about four months.

The query with me is, how could nature's function harmonize, in thus enabling the mother to carry both a dead and living child for at least five months? The mother recollects, that when about three or four months advanced in pregnancy, the sudden announcement of the death of a relative produced a fainting fit, some sickness of stomach, and slight indisposition for two or three days. Since then, up to the time of her labour, she has enjoyed uniform good health.—*Boston Medical and Surgical Journal*, December 7, 1853.

(Such cases, although uncommon, occasionally occur. Dr. Porter has related some, we think, in previous volumes of the *Amer. Journ. of Med. Sciences.*)

T. R. B.

62. *Duration of Human Pregnancy.*—Dr. SIMPSON, Professor of Midwifery in the University of Edinburgh, adds his testimony to that of many others who have gone before him, in favour of the uncertainty of the length of human pregnancy, and asserts that "deviations from it, both in the way of diminution and of excess of time, are perhaps far more common than is generally supposed." We quote some cases that have fallen under his own observations.

CASE I. This patient was married in September, 1845, and was supposed by her medical attendant to be pregnant in the earlier months of 1846. The case, however, proved to be one of that common affection, "spurious pregnancy," and the catamenia, after being eight months obstructed, returned regularly. I first saw her in the course of the following year, in consequence of her suffering under leucorrhœa, and symptoms of chronic inflammation of the cervix uteri. The cervix uteri was enlarged and ulcerated, and the fundus greatly anteverted. The uterine inflammatory symptoms yielded under appropriate treatment, but the anteversion remained. In July, 1848, an intra-uterine pessary was introduced with a view of rectifying this displacement. The instrument remained in the uterine cavity till the end of October following. Immediately after its removal pregnancy occurred, and she was delivered of a daughter in July, 1849, the labour being rendered very severe and tedious, by extreme rigidity of the tissues of the cervix uteri. From this cause, the patient was during parturition fourteen hours continuously under chloroform. It was in the next, or second pregnancy, that there was the apparent prolongation of utero-gestation. In the first week of January, 1851, the menses were present and disappeared on the 4th or 5th of the month. On the 20th of January, there occurred a return of menstrual discharge for six days, in consequence of great mental distress at the death of a favourite brother. No menstrual discharge appeared from that date, and she was confined on the 28th of December, that is, 336 days after the last appearance of the catamenia. From the patient wishing to go abroad, I was asked to ascertain if she were in the family way, towards the end of April. In consequence of the size and shape of the uterus, &c., I had no hesitation in concluding, at the time, that she was then at least two months advanced in pregnancy, and I calculated for her that she would be confined about the middle of November. Parturition, however, as I have already stated, did not occur till the 28th of December.

CASE II. Mrs. ——, the mother of two children, and always quite regular in her menstrual periods, except when pregnant and nursing, began to menstruate about the 20th of September, 1851, and the discharge ceased on the 24th. Shortly after this date she had feverish symptoms, and from the cata-

menia not returning, she considered herself pregnant. She was not delivered, however, till August 3, that is, 332 days from the last day in which the menses appeared.

This lady's case was interesting otherwise. In the middle of December, in consequence of a long walk, she was threatened, in London, with symptoms of miscarriage, requiring rest and treatment. On the 3d, or rather morning of the 4th of January, a large steamer, in which she was, caught fire when two or three days out at sea, and only a small number of the passengers and crew escaped. After making almost superhuman exertions to save herself and a young son seventeen months old, whom she held in her arms, and after having her body severely bruised and contused, she was exposed for seventeen hours in an open boat, with little or no clothing, and sitting immersed several inches deep in water, during that long and anxious period. Yet all the fearful mental excitement and bodily exertion to which she was thus exposed was accompanied with no tendency to miscarriage, though two or three weeks previously a long walk had nearly brought on abortion.

Could the protracted mental agitation and trial have in any way led to the unusual prolongation of her pregnancy?

CASE III. A patient had the usual menstrual discharge in March, 1852, and it left her on the 23d of March. She was not delivered until 319 days (February, 1853). After their last appearance, Dr. Simpson examined her in May, 1852, and found the uterus so enlarged, as to leave no doubt whatever that she was then about two months pregnant. She had been married several years and without any family, when she first came under Dr. Simpson's care. The uterus was retroflexed, and for this she wore for some time an intra-uterine pessary. After its removal she became distended, and had various other symptoms of pregnancy, as very dark and enlarged areolæ. But the uterus did not increase in size. The present prolonged period of gestation occurred with the lady's fourth child.

CASE IV. The following case Dr. SIMPSON received from Dr. YOUNG: The patient was always regular in her menstrual discharges, and they were present from the 9th to the 14th of July. She felt sickness towards the end of the same month, and continued so, more or less, for four months, or towards the end of November. Foetal movements were distinctly felt on the 17th of November. She was delivered on the 3d of June (10 months and 18 days), being 324 days after the last appearance of the menses, and 6 months and 16 days, or 198 days after the first symptoms of quickening.—*Monthly Journal of Medical Science*, July, 1853.

T. R. B.

63. *Nicotine*.—A discussion occurred in the Belgian Academy of Medicine on the 15th of October, 1853, as to the priority of discoveries concerning the action of this poison by Orfila, or Stas. While the early observations of Orfila on the absorption of many mineral poisons, and of some of the vegetable ones, were duly acknowledged, the friends of M. Stas urged the adoption of the following resolutions:—

That the priority of the discovery of the absorption of nicotine, of its immutability in the animal economy, and of the means to obtain this poison, without change or loss, belongs to M. Stas.

That the researches of M. Orfila on nicotine are later than those of M. Stas, by half a year.

It appears, however, that these were not adopted. A general resolution of thanks was voted to him, and the public are referred (the best reference) to his Memoirs, printed by the Academy.—*Gazette Médicale de Paris*, December 17, 1853.

T. R. B.

64. *Rape on an Idiot*.—In the Court of Common Pleas of Athens County, Ohio. March Term, 1853. Before Mr. Justice Nash.

State of Ohio against John Crow.

A female *idiot*, or an *insane female*, may be the subject of a rape.

An assault with an intent to commit a rape may be committed on the person of an *insane female*, or a *female idiot*.

The crime of having carnal knowledge of an *insane female*, knowing her to

be such, is consummated when the act is done knowingly with her acquiescence or consent.

The word *insane* in the sixth section of the act for the punishment of crimes, Curren's *Revised Statutes*, pp. 184, 185, is used in its elementary and popular meaning, unsoundness of mind; and hence, embraces the case of one's having carnal knowledge of a female idiot, knowing her to be such.

The defendant was indicted: 1, for having committed a rape on the person of Louisa Dowler; 2, for an assault with the intent to commit a rape on said Louisa; and, 3, for having had carnal knowledge, she, said Louisa being an insane woman, and he, said defendant knowing her to be such. The defendant pleaded not guilty, and the cause was tried by a jury at the last March Term of the Common Pleas.

The evidence on the trial proved that said Louisa Dowler was of unsound mind, and had been so from her nativity; though she was not so absolutely destitute of mind that she did not perform the necessary functions and calls of humanity; but that she had not mind enough to testify as a witness, or to be held legally responsible for her acts, whether civil or criminal.

The words of the statute are: "That if any male person, seventeen years old and upwards, shall have carnal knowledge of any other woman than his wife, such woman being insane, he knowing her to be such, every person so offending shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be imprisoned in the penitentiary, and kept at hard labour not more than ten, nor less than three years."

Mr. Kowles for the State.

Messrs. Nye and Jewett for defendant, claimed that the said Louisa, being an idiot, had no will, and, therefore, that a rape could not be committed on her person against her will; it was further claimed that the word *insane*, in the sixth section of the act, did not embrace an idiot; and, hence, that the defendant could be convicted of neither of the charges embraced in the indictment.

Mr. Justice NASH. It is claimed, *first*, that a female idiot is not the subject of a rape; that she has no will, and hence, an act cannot be done to her person against her will. No authorities are cited for this startling position. On looking into the books I can find no such distinction intimated; and, if such was the law, it is singular that so important a qualification of the crime of rape should not have been noticed hitherto in any treatise on this subject. Rape is defined to be, the having carnal knowledge of a female, *forcibly and against her will*. There is here no limit to the use of the word female; nothing said as to the soundness or unsoundness of her mind, as to idiocy or insanity. In this respect, our statute follows the common law; and must, therefore, be construed as the same words were construed in the definition of the crime at common law.

There is another consideration not to be overlooked. The section providing for punishing assaults with a criminal intent, declares that an assault committed on another, with the intent to commit a rape, shall be criminal. Now, if a rape cannot be committed on the person of an idiot, then it is no crime to assault her person with such an intent. The same question applies also to assaults committed on an insane person; since this argument places them without the protection of the law, punishing the crime of rape. Nor are insane persons protected under the sixth section, since the crime there described is committed only when the perpetrator knows the woman to be insane. Indeed, that section is clearly limited to the case of a male person's knowingly having sexual knowledge of an insane female without resistance on her part, and with her acquiescence. Hence this section cannot be made to embrace the case of one having such sexual intercourse forcibly and against the will or resistance of such insane female.

It is further claimed that an idiot is not an insane person under the meaning of that term in the sixth section. This result, then, follows, that a female idiot is left wholly unprotected against this class of crimes. A person cannot be punished for having carnal knowledge of her person forcibly and against her will, as she has no will to overcome; she is not an insane person, and so not under the protection of the sixth section, and neither an idiot, nor an insane female is protected against assaults made with an intent to commit a rape, since a rape cannot be committed on the person of either.

It must require some very cogent reasoning, or some very convincing authorities, before the court could be induced to give a construction to a statute which must lead to such results. But here is no such authority; no such decision has been found. Is there any more force in this reasoning? Let us examine it for a moment.

In the first place, where the carnal knowledge is had by *force*, it must be against the will of the female. Nor need there be any direct evidence of this action of the will; the law implies the want of consent from the force itself. It is the *consent* of the female which takes away all criminality from this connection; it is this want of consent which renders this connection obtained by force, criminal. Hence, if an idiot has no will to be overcome, she has none to consent; and then the law implies that the act being accomplished by force, is done against her will.

But is it true that an idiot or insane person has no will? What is the definition of these two words? Do they imply the *loss of will*, or a mere *unsoundness of mind*? These words are thus defined by Webster: "Idiot—a natural fool, a fool from birth; a human being in form, but destitute of reason or the ordinary intellectual powers of man. Insane—unsound in mind or intellect; mad; deranged in mind;" and one of the words used to define *insanely* is *foolishly*. Fool is defined to be one who is destitute of reason, or the common powers of understanding; an idiot. Some persons are born *fools*, and are called *natural fools*; others may become *fools* by some injury done to the brain. In Chitty's *Medical Jurisprudence*, p. 348, "an idiot is defined to be a person who has been *defective* in intellectual powers from the instant of his birth, or at least before his mind had received the impression of any idea." Again: Chitty says "that idiocy consists in a defect or sterility of the intellectual powers; but it may be induced in after life; while lunacy or madness consists in a *perversion of intellect*." All these definitions imply either a *weakness*, or *perversion* of the mind, or its powers, not their *destruction*. The powers are still all present, but in an impaired and weakened state. Hence, an idiot cannot be said to have no *will*, but a *will weakened and impaired*—a will acting, but not acting in conformity to those rules, and motives, and views, which control the action of the will in persons of sound mind. Indeed, in an insane person, the will is too often fearfully active, and wholly uncontrollable by reason or persuasion. There is here no lack of will, but simply a *perversion* of it. Nor is this the most conclusive answer to this argument. If there is no will, how are the voluntary actions continued? Actions, which like respiration, are instinctive, are independent of the will; but eating, and numerous other acts, which necessarily imply the exercise of the will, are performed by idiots and insane persons; and their exercise demonstrates the existence of a will; of a will which can assent to, or dissent from, what are clearly voluntary acts. I have, therefore, no hesitation in holding that both idiots and insane persons are possessed of a will, so that it may be legally and metaphysically said, that a carnal knowledge may be had of their persons *forcibly* and against their will.

The next inquiry is, what is the proper construction to be given to the word *insane*? In the sixth section of the act for the punishment of crimes, Curren's *Revised Statutes*, p. 184, that section provides: "That if any male person, seventeen years old and upward, shall have carnal knowledge of any woman, other than his wife, such woman being *insane*, he knowing her to be such, shall be deemed guilty," &c. It is claimed that this word *insane* does not embrace a female who is an idiot. We have already seen that idiocy may be induced after infancy, as well as be congenital, Chitty's *Med. Jurisp.* p. 347, and that both terms are defined by the same words *unsoundness of mind*. In the one case, this unsoundness of mind develops its existence in want of capacity to reason at all; or, at least, in a much less degree than the generality of mankind; while, in the other, there is perhaps greater acuteness, though upon false and fancied hypothesis. Chitty's *Med. Jurisp.* p. 348. Still, in both cases, unsoundness of mind is the cause. The very origin of the word *insane* demonstrates this; in its Latin origin, it is a word simply meaning *unsound*, and nothing more; and in the popular language it is used in this sense to this day, whatever may be the specific meaning attached to it by writers on mental diseases.

If, then, the object and policy of this statute embraces idiots as well as lunatics, there is nothing in the use of the word *insane* which absolutely precludes us from giving that elementary meaning to the word in this statute. The reason of this provision clearly applies to idiots, as well as to lunatics; if there is any reason in the case of female lunatics, why sexual intercourse with them should be prohibited, equally strong is the reason why it should not be permitted with female idiots. If the offspring in the one case might be affected with insanity, so in the other it might with idiocy. Whatever reason, therefore, can be found to call for the law in relation to female lunatics, will apply in an equally cogent manner to idiots. If the one class ought to be protected, equally so ought the other.

Such then being the manifest scope of the law, I can have no hesitation in concluding that such was the intention of the legislature; that this word *insane* was used in its elementary and popular meaning, as descriptive of that unsoundness of mind which renders individuals civilly and criminally irresponsible for their acts, whether that unsoundness discloses itself in idiocy or lunacy.

In accordance with these views, I hold that a female idiot, or an insane female is the subject of a rape; and, hence, of an assault with the intent to commit that crime; and that a male person, of a proper age, who shall have carnal knowledge of a female idiot, knowing her to be such, is guilty under the sixth section of having carnal knowledge of an insane woman, knowing her to be such.

The jury were so charged, and they returned a verdict of guilty of an assault with an intent to commit a rape, and not guilty on the other two counts. And sentence was passed on the prisoner.—*Western Law Journal*, vol. x. pp. 501-5.

T. R. B.

65. *Hydrate of Magnesia and Hydrated Oxide of Iron as Antidotes for Poisoning with Arsenic.* By M. SCHROFF.—Mr. Bussy has prepared the former as an antidote, and in order to test the comparative merits of each, M. Schröff undertook a series of experiments. Rabbits were selected as the animals, as they do not possess the power of vomiting, and they were kept without food for sixteen or eighteen hours. The poison and the antidote were injected directly into the stomach by means of a small syringe with an elastic tube. After the injection, the animal was again kept without food for five or eight hours, in a cage so constructed, that the urine which might be voided was collected, and this was submitted to a careful chemical and microscopical examination.

The chemical analysis of the matters examined for arsenic was made according to the method of M. Schneider. This method is founded on the transformation of arsenious acid into chloride of arsenic. The organic substances suspected to contain arsenic are put into a tubulated retort, and common salt, equal in weight to the substance operated upon, is added to it. A tubulated and quilled receiver is fitted to the retort, a small bottle being attached to the quill, so as to collect any liquor that may condense in the receiver, and a tube bent twice at right angles being fixed to the tube from above, and terminating in a vessel half filled with water. Pure concentrated sulphuric acid is now poured into the retort through a safety-tube, and after the reaction has continued for some time in the cold, the retort is gently heated. The ascent of hydrochloric acid converts the arsenious acid into volatile chloride of arsenic, which distils over with the aqueous vapour and excess of hydrochloric acid gas. Most of the chloride of arsenic will condense in the receiver as a heavy liquid, but a portion of it will pass on with the hydrochloric acid gas, and be collected in the vessel containing the water. The distillation is to be continued until what passes over ceases to give a yellow precipitate with sulphuretted hydrogen. If the collected liquors do not contain sufficient arsenic to give a precipitate with sulphuretted hydrogen, this may still be tried for arsenic by Marsh's apparatus. (In delicate investigations, the author recommends that the contents of the retort, as well as the distilled liquor, should be tested by Marsh's apparatus, in which case, the liquid from the retort should be first treated with chlorate of potash, in the usual manner, so as to decompose the organic matters.)

It was ascertained by some preliminary experiments, that 0.05 of a gramme (somewhat less than a grain) of arsenious acid, rubbed to powder, mixed with

five grammes of water, killed a rabbit in two or three days, and that 0.15 of a gramme caused death in about four hours.

In order to test the effect of magnesia as an antidote, a gramme of magnesia (about fifteen grains, Troy weight) was mixed with 0.05 of a gramme of arsenious acid, mixed with water, and administered to a rabbit. In another case, the arsenious acid was first administered by itself, and the magnesia about an hour afterwards. Neither of the animals died, but they both manifested symptoms of poisoning, which did not entirely disappear for about eight days, and the presence of arsenic was detected in the urine.

Magnesia is not, therefore, strictly speaking, an antidote, but it is capable of greatly mitigating the poisonous effects of arsenic.

The results obtained with hydrated oxide of iron were less satisfactory than those with magnesia. A rabbit, to which 0.05 of arsenious acid, with 1.35 gramme of hydrated oxide of iron was administered, died at the end of six days. Another, to which the arsenious acid was given alone, and the oxide of iron about an hour afterwards, died the following day.

The author draws the following conclusions from the results of his experiments :—

Hydrate of magnesia, and hydrated oxide of iron, are both capable, to a certain extent, of mitigating the poisonous effects of arsenious acid, and hydrate of magnesia is certainly the most efficacious of the two. Hydrate of magnesia, being more finely divided and lighter than the other, does not promote alvine dejections so much. Arsenite of potash causes death more quickly, and in smaller doses, than arsenious acid, and the poisonous effects of this salt are neither neutralized, nor even mitigated, by acetate of magnesia, or acetate of peroxide of iron, but, on the other hand, the fatal result is expedited.—*Pharmaceutical Journal*, July, 1853, from the *Journal de Pharmacie*. T. R. B.

66. *Hydrate of Magnesia as an Antidote in Poisoning.*—SCHUCHARDT represents as the result of his experiments, that hydrate of magnesia is a certain antidote, not only for arsenious acid, either in solution or substance, but also for corrosive sublimate, for the salts of copper, and even, although in this respect the experiments are not so satisfactory, for the alkaloids, such as morphia and brucin. The hydrate of magnesia may be prepared by mixing slightly calcined magnesia with water. In poisoning with arsenious acid, magnesia, given as an antidote, should exceed eight times the weight of the poison. For corrosive sublimate the antidote need not exceed five times the weight of the poison.—*Ibid.* from *Journal de Pharmacie d'Anvers*. T. R. B.

67. *Poisoning by Strychnia.*—This case occurred near London. The prescription was: R. Strychnos nux vomici 3ij; bismuth trisnit. 3iss. M. Ft. pulv. xxiv. The prescription was prepared twice or thrice at different shops, and produced no bad effect; but, on one occasion, the young man put in strychnia and nux vomica, of each 3ij. The patient took one dose, and very soon afterwards complained of some extraordinary sensations, and almost immediately expired. The accomplished dispenser, from the prescription forming part of two lines, supposed the article to consist of two substances.—*Pharmaceutical Journal*, July, 1853. T. R. B.

68. *On the Action of Hydrated Peroxide of Iron.* B. M. FEHLING.—At the suggestion of the Medical College in Stuttgart, Fehling has made some experiments on the action of hydrated peroxide of iron, which has been kept for a longer or shorter time. He found that:—

1. 100 grammes of the pasty fresh precipitated hydrate, prepared according to the directions of the *Pharmacopœia*, and containing five per cent., precipitates 0.350 grammes, and almost 0.400 grammes of arsenious acid; while that which had been kept a year, precipitated only 0.200, even after digestion for two hours.

2. That hydrated oxide of iron precipitates arsenious acid in the same quantity, when combined with potash, soda, or ammonia, as when in a free state. The presence of sulphate of ammonia, of chloride of ammonium, of free ammonia, of carbonate of potash, or soda, is not prejudicial to the precipitating.

3. The liquid obtained by precipitating sulphate of iron by an excess of magnesia, and containing, besides hydrated oxide of iron, free magnesia, and sulphate of magnesia, precipitates arsenious acid in larger quantity than the hydrated peroxide of iron present in it does alone. It precipitates the arsenious acid of Fowler's solution; from solutions of Schweinfurten Green, in vinegar, both arsenious acid and oxide of copper, while the pure hydrated peroxide does not precipitate oxide of copper.

4. According to these results, it cannot be doubted, that it is better to prepare the hydrated oxide as occasion may require fresh from a solution of a per-salt kept for that purpose. Fehling recommends the use of persulphate of iron and carbonate of soda.—(*Archiv der Pharmacie*) *Pharmaceutical Journal*, Aug. 1853.

T. R. B.

69. *Poisoning by Ink.*—A drunken soldier had given to him a large glass of ink, under the pretence that it was porter. He drank it, and after sleeping for an hour, awoke in the most violent pain. It was at once evident from the black stains upon the lips and tongue, as well as from the residue of the liquid left in the glass, that the symptoms were occasioned by the ink. The patient suffered extreme weakness, trembling of the muscles, and violent beating of the heart. These symptoms of gastro-enteritis were likewise accompanied by nervous affections, headache, and very painful cramps in the thighs. After four or five hours, the patient commenced vomiting a pasty mass mixed with ink, which gave strong indications of sulphuric acid. Mucilaginous and saccharine beverages were given, and after a short time he improved. He was convalescent on the third day, but still complained of weakness, trembling, and an oppressive pain in the back of the head.—(*Oester. Zeitschrift*) *Pharmaceutical Journal*, October, 1853.

T. R. B.

70. *Cases of Poisoning.*—CHEVALLIER has recently communicated to the *Journal de Chimie Médicale*, several cases, an abstract of which is given below.

1. *Poisoning by Copper.*—A husband attempted to poison his wife by adding verdigris to a dish of beans. The bad taste prevented her from eating them. He buried the cooked mess in his garden, from which it was disinterred, and then examined by chemists. They proved the certain presence of the metal. The criminal pretended that it was derived from a bunch of phosphoric matches, but could not prove even their presence.

He was condemned to hard labour for life.

2. *Poisoning of a Fountain by Arsenic.*—A person was brought before the Court of Assizes, charged with this crime.

The arsenic used was in powder, and it discoloured the water with a white appearance, which prevented the inhabitants of the commune from employing it for their daily drink. A woman, however (although warned against it by her husband), collected a quantity, and having removed with the point of a needle a globule swimming on the top, through curiosity, put it on the end of her tongue. Soon pain and contracting of the throat, so that she could not swallow, succeeded, and she was so satisfied of being poisoned, that a complaint was made to the official authorities.

A chemical examination was made, and the substance diffused through the water was proved to be *white oxide of arsenic*. The crime being proved, the prisoner was condemned to hard labour for twenty years.

3. *An attempt to Poison with Ammonia.*—A mistress of an officer, he being desirous of breaking up the connection, at their last proposed interview, attempted to make him swallow a quantity of ammonia. A physician (Dr. Cassius) was sent for immediately. He found the lips excoriated with phlyctenæ, and the tongue swollen and deprived of its epithelium, and the mouth and palate abraded. The throat was so painful as to prevent swallowing, and pressure on this and the region of the oesophagus was very painful.

The testimony was to this effect. The jury acquitted the female as to the charge of poisoning, but convicted her on that of causing wounds which incapacitated the sufferer for twenty days, and she was sentenced to an imprisonment of two years.—*Gazette des Hôpitaux*, Dec. 31, 1853.

T. R. B.

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

On Trismus Nascentium. By NICHOLAS MERIWETHER, M. D., of Montgomery, Ala.—This disease generally appears sporadically, but sometimes endemically, rarely attacking white children; which is to be accounted for by the superior cleanliness of the white race. To show the great prevalence of this disease in some portions of the Southern States, I will quote the following from a paper in the May number of the *New Orleans Medical and Surgical Journal*, on the negro and his diseases, by S. L. Grier, M. D., of Miss. :—

"The first form of disease which assails the negro race among us, is trismus. The mortality from this disease alone is very great. No statistical record, we suppose, has ever been attempted, but from our individual experience we are almost willing to affirm that it decimates the African race upon our plantations within the first week of independent existence. We have known more than one instance in which, of the births for one year, one half became the victims of this disease, and that too in despite of the utmost watchfulness and care on the part of both planter and physician. Other places are more fortunate, but all suffer more or less; and the planter who escapes a year without having to record a case of trismus nascentium, may congratulate himself on being more favoured than his neighbours, and prepare himself for his own allotment, which is surely and speedily to arrive."

When this disease appears endemically on a plantation, it may be arrested by having the negro-houses whitewashed with lime inside and out; by raising the floors above the ground; by removing all filth from under and about the houses; by paying particular attention to cleanliness in the bedding and clothes of the mother, and in the dressing of the child so as to prevent any of the matter from the umbilicus lying long in contact with the skin of the latter. To effect this last, I usually slit a small piece of old linen, and, after greasing it, pass it between the abdomen of the child and the dressing usually applied to the umbilicus. This is to be renewed every day. The planter or overseer should be requested to examine and see whether there is any disturbance of the bowels for the first ten days after birth, so that the physician may have early notification. So much for prevention.

From the similarity of trismus to traumatic tetanus, it has been supposed that the disease is caused by absorption of pus by the umbilical vessels. I am inclined to that opinion, and base my treatment accordingly. In all the cases I have seen, there was an unhealthy appearance of the navel, and disturbance of the bowels; the passages were generally greenish and ill looking. When called early to a case (that is, as soon as there is spasmodic action in the muscles of the extremities and back, which appears usually before the affection which characterizes the disease as infant lock-law), I commence the treatment by giving the following mixture: R. 30 gts. paregoric; 2 gts. oil turpentine; 4 grs. gum kino; 1 teaspoonful prepared chalk, to be mixed in 8 teaspoonfuls of water; a teaspoonful to be taken every

hour or two, taking care not to narcotize the child. If the disturbance of the bowels continues, or if the spasm of the muscles does not cease, I apply a blister immediately over the navel; the blister should be circular, and larger than a dollar. With this treatment, I have rarely failed to arrest the convulsions, and save the patient.

Five Fractures occurring in a Child at the same time; successfully treated by the Starch Bandage. By GEO. M. DEWEY, M. D., of Keytesville, Mo.—On the 16th of August, 1853, I was called to see a little girl, named Maria White, aged six years. This child, while at play with an older sister in a flour mill, became entangled, by her clothes, with an upright shaft, around which she was carried very rapidly, for three or four minutes, before the mill was stopped. On one side of the shaft was a pile of bags of wheat, on the other the mill-stones, leaving a space of some eighteen inches through which the child was carried; some part of her body or limbs struck the bags or stones at every revolution of the shaft.

The following was the result: Fracture of the left humerus near the insertion of the deltoid; fracture of the left femur through the middle third; compound fracture of the right femur, at the lower third, with protrusion of the upper fragment, and considerable venous hemorrhage; fracture of the right tibia and fibula at the upper third. I found the patient, one hour after the accident, with feeble pulse, cool skin, and great prostration of the nervous system. No pulsation in the right leg, in consequence of displacement, and effusion at the seat of fracture. Gave brandy and laudanum, which soon brought on reaction.

I immediately called in consultation Dr. Isaac P. Vaughan, of Glasgow. By his advice and assistance we applied the starch bandage to all the fractured limbs, and kept the patient under the influence of chloroform during their application.

On the following day, fearing gangrene of the right foot, in consequence of obstruction to the circulation, and the bandages having hardened a little, I divided the bandage on the right limb through its whole length, and cut out a circular piece corresponding to the wound in the thigh. I found the foot cold, livid, and vesications appearing in several places. Applied warm poultices, and at the end of five days warmth gradually returned. For the first ten days following the accident there was considerable constitutional disturbance, and the child being very irritable and ungovernable, I kept her under the influence of morphia most of the time.

Sept. 5. The wound in the thigh having healed, and the bandages becoming loose, I split them longitudinally, and took out an inch or more, brought them together, and applied another bandage over.

23d. Removed all the bandages. Perfect union had taken place in all the fractures, without deformity, except in the right leg, which is a little crooked, and slightly shortened.

February 2, 1854. My patient is playing about with great glee, and with a very slight halt in her gait.

KEYTESVILLE, Mo., February 3, 1854.

Repeated hourglass Contractions of the Bladder during Lithotomy. By J. L. PEIRCE, M. D., of Bucks County, Pennsylvania.—Having in consequence of long-continued ill health been compelled to leave Philadelphia, I took up my abode in Richmond, Indiana, and entered into partnership with Dr. Plummer of that place. On the 1st of October, 1842, the son of

Isom Harvey, of Centreville, was brought to our office. His age was nine years and four months. According to the account given us, he had had some affection of the bladder since he was ten or twelve months old. His sufferings for some years had been very great, with a constant inclination to keep his hand upon his penis and pull the prepuce. I sounded him, but could detect no stone, owing probably to his having just ridden six miles on horseback. I gave him potas. nit. 5 grs., cubeb 2 grs. four times a day. In about a week he was again brought to the office. His symptoms were considerably mitigated; but sounding was again ineffectual. The same treatment was continued. We heard no more of the case until the 6th of January, 1843, when the grandfather of the boy again called on us.

7th. I visited the patient at his residence at Centreville, and found his symptoms very much increased in every respect. His pain, or I should rather say, his agony was almost constant. He was unable to retain his urine at all; and much of the time he was digging with his fingers into his fundamen. On sounding him I detected a stone. The bladder was exceedingly irritable, and much mucus was passed with his water. His clothing was constantly wet with his urine, his countenance was haggard, pulse feeble and frequent, appetite poor, bowels regular.

I ordered Potas. nitr. gr. v, cubeb gr. ii every six hours. This was continued for one week, when a mixture of copaiba and camphor water was alternated twice a day with the preceding. Under this treatment our little patient rapidly improved. His sufferings gradually intermitted, and his health and general condition were so much improved by the close of the second week, that I thought that Tuesday the 24th inst. might be appointed for the operation.

24th. In the presence of Dr. Swain, of Centreville, and Drs. Ruby and Swallow, of Abington, and four students, I performed the lateral operation of lithotomy. Dr. Swain was my principal assistant. On the previous afternoon the patient had taken a dose of Epsom salts, which on the morning of the operation had produced four free evacuations.

It is useless to detail the preliminary arrangements of the operation, or the mode in which the operation was performed. Suffice it to say, there was nothing unusual in either of them. But the points to which I wish particularly to draw attention: are first, an accident which occurred during the operation; and, secondly, the remarkable contraction of the bladder referred to at the heading of this article.

After the rectum had been exposed, in continuing the incisions down towards the urethra, the irritation caused by the knife produced a sudden renewal of the operation of the cathartic medicine; in an instant the rectum distended so suddenly as to cause it to come in contact with the knife, and a small incision was made in the bowel just above the sphincter ani. Perhaps there was a degree of unskillfulness on the part of the operator; it may be so; but the filling of the rectum was as quick as lightning, and the accident occurred before there was time to give it a thought. Subsequently, several free evacuations of the bowels took place, and a small portion of the feces passed through the wound in the rectum. After the bladder was opened the finger was inserted and the stone was felt. On inserting the forceps, the bladder suddenly contracted and forced the stone behind the pubes where it was firmly retained by the contraction of a portion of the bladder around it, while the rest of the bladder became relaxed. The forceps were withdrawn and the finger inserted. It was with much difficulty that the stone was disengaged from behind the pubes; but when this was effected the bladder became entirely relaxed. The

forceps were again inserted, but as soon as they came in contact with the mucous membrane the bladder contracted, forcing the stone behind the pubes, where it was again retained as if by a ligature around the middle of the bladder, while the inferior portion thereof was entirely soft and flabby. I did not keep an account of the number of times this process was repeated, but should suppose it was at least six or eight times. Finding that my efforts were thus unavailing, I handed the instrument to my friend, Dr. Swain, requesting him to manipulate. He did so, but after making ten ineffectual attempts, in each of which he was baffled by the same spasmody contraction of the bladder, he returned me the forceps, stating that he could not succeed. I now saw that some plan must be devised to intercept the communication between the two portions of the bladder; and for this purpose I bent a small sound into the shape of a loop; with my finger I extricated the stone from its hiding-place; placed the sound across the bladder so that its contracting should not again force the stone behind the pubes; gave the sound to an assistant to hold; inserted my finger followed by the forceps; seized the stone; slightly enlarged the incision in the bladder to admit of its passing, and extracted it.

The stone was found to be of the size and shape of a large black walnut. Its length was one and nine-sixteenths of an inch, its breadth one and seven-sixteenths of an inch, and its thickness one and four-sixteenths of an inch. It was very rough exteriorly.

A large catheter was inserted into the opening in the bladder, and the patient was put to bed. I remained with him during the night. After the operation he appeared entirely comfortable until about six o'clock in the evening. My attention was then drawn to him in consequence of a very hurried respiration, and his exclaiming repeatedly, "How it hurts." I found his hands cold, his pulse very rapid and feeble, and in a few moments it became fluttering. I administered a dose of carb. ammoniæ. By this time his pulse at the wrist was imperceptible. A dose of camphor and Dover's powder was then given, and in about fifteen minutes all became tranquil, pulse natural, warmth restored. At about eight o'clock he fell asleep; rested very comfortably during the night; no pain, no unpleasant symptoms; and at about nine o'clock on the morning of the 25th I returned home.

26th. Has had three sinking spells since I left him yesterday; appeared comfortable during my visit. From this time for six days, these sinking spells recurred about three times daily, but were relieved by the powders above mentioned. A violent bowel complaint existed during the first four days; during which a portion of the evacuations passed by the wound. On the 29th and 30th, no stool. On the 31st, a passage by the natural channel, and subsequently one by the wound.

February 2. Patient very languid; no disposition in the wound to heal; stools and urine still pass by the wound. Ordered a nourishing diet of chicken, pigeon, &c., and a tonic mixture, mist. ferri comp., was given in doses of half an ounce, three times a day.

4th. A great improvement in the general appearance of the patient; appetite good; colour more natural; says he feels stronger. Two evacuations yesterday by anus; but two to-day by wound.

6th. The wound has healed rapidly since the last visit, and looks healthy.

8th. The boy continues entirely comfortable; the evacuations at times pass by the wound; but all appearance of inflammation or granulation in the wound has ceased. I filled it with patent lint. A diarrhoea has troubled him some during the last two days, and a worm yesterday passed by the wound.

10th. Granulations have again sprung up, and the wound has a more healthy appearance. Diarrhoea has ceased.

12th. Found my little patient comfortable and happy. The wound has closed considerably since my last visit. The fecal evacuations have passed by both anus and wound. On the evening of the 10th his urine passed by penis, and the same has occurred twice since.

20th. During the last four days the patient has passed most of his water by the penis; and for the last twenty-four hours all of the feces have passed per anum. Has sat up a portion of each day during the last week.

March 2. Since the last date there has been little or no improvement in the wound. A small portion of urine and feces have continued to pass through it. I this day covered some lint with blue ointment, and passed it up the wound as far as I could on the end of a probe.

17th. The mercurial ointment has been applied several times since the last date, and the wound has externally assumed a healthier and firmer appearance. The sinus is now about the size of a small quill.

April 8. The fistula has diminished so much in size that no opening can be perceived, unless it is very closely examined. A very slight oozing from it continues; and during the last week, while the patient had a diarrhoea, the water that passed from the wound was slightly coloured, as if it were mixed with some feces; so that it is probable the opening in the rectum has not entirely closed. The patient's general health is good, and he runs about and plays very actively.

I had for some time past concluded that the operation for fistula in ano would have to be performed to relieve him from the result of this comparatively slight, yet serious accident, during the operation of lithotomy. But my own health being again on the decline, I left my little patient under the care of the family physician, and soon afterwards sought health for myself in the more northern clime of Michigan.

Remarks.—I have endeavoured to give a faithful record of this case, even at the risk of the charge of unskilfulness in the operation. It has appeared to me that if the errors and accidents of practice were more generally recorded, practitioners could profit more by such records than by those of perfectly successful cases. Whether the peculiar contraction of the bladder in this case was unique or otherwise, I cannot say; but I have never seen or heard of any such occurrence. And in the first operation for lithotomy, it appears to me that it would be embarrassing in the hands of any one. The early occurrence of the diarrhoea most probably prevented a union of the small incision in the rectum immediately after the operation; and the frequent recurrence of it subsequently, no doubt greatly retarded the cure. Some surgical authors speak of such accidents as unimportant; perhaps they may generally prove so; but this instance proves that such is not invariably the case. And if the record of this case shall prove of service in any future operation, I shall feel gratified in having recorded it.

DOMESTIC SUMMARY.

Yellow Fever in Philadelphia in the Summer of 1853.—Dr. WILSON JEWELL, who, from his position as a member of the Board of Health, had the best opportunities for investigating the history of the outbreak of yellow fever in Philadelphia during the past summer, has given, in a paper read before the College of Physicians at their meetings in August, September, October, and November

last, a very full and interesting account of the origin and progress of this epidemic.

During the month of July last, he remarks, "our unusually healthy city was thrown into a state of great excitement, from a suspicion that yellow fever, with its fearful concomitants, threatened once more, after an absence of the third of a century, to find a 'local habitation and a name' in our midst.

"A careful investigation into the circumstances giving rise to this alarm, has resulted in the development of the following facts, having a direct bearing upon the origin and history of this much dreaded visitation:—

"On the 25th of June last, the barque Mandarin, Capt. R. N. Campbell, sailed from Cienfuegos, Cuba, for this port, all in good health, with a cargo of sugar, molasses, and cigars. Her crew consisted of twelve men. On arriving at the Lazaretto, July 12, after a passage of seventeen days, she was visited by the officers at the station, and, on oath, the captain reported 'cases of small-pox and fever' at Cienfuegos when he left. That he had lost two of his crew on the passage with fever. The statement of the Lazaretto physician is, that 'the crew, numbering ten souls, were examined and proved to be in good health; notwithstanding this, it was considered prudent that the barque should be detained until thoroughly ventilated, cleansed, and fumigated; the bedding and clothing of the deceased sailors were destroyed, the vessel whitewashed and fumigated in every part with chloride of lime, the bedding of the crew aired, and their clothing washed; she was detained an entire day; and, before being allowed to proceed to the city, all on board were separately and minutely examined; all hands were on duty, and apparently free from disease. The captain spent a portion of the day on shore, and before being permitted up, declared on oath that 'all on board were in good health,' and that no sickness, except that resulting in the death of the two seamen, had occurred during the voyage.'

"On the evening of the 13th, the Mandarin reached the city, and came to at South Street wharf. On the 16th she was hauled up to the lower side of the first pier below Lombard Street, where she discharged her cargo. The crew having been previously discharged, the captain and mate remained by her, sleeping on board. On Wednesday morning, July 20, seven days after her arrival, she dropped down to the lower side of the first pier above Almond Street, where she remained until the 26th, when she was removed by order of the Board of Health to the cove below the Navy Yard, from whence, on the 28th, she was remanded to the Lazaretto, in order to undergo a more rigid and thorough purification.

"There was no development of disease of a malignant type in the vicinity of where this vessel lay, as far as has been ascertained (and the strictest inquiry has been instituted by Dr. Gilbert, the Port Physician, to whose politeness we are indebted for many of the facts here recorded), either before or during the time of discharging her cargo, and it is still to be made known that any of her sailors, or any of the labourers employed in removing her cargo, have since been sick.

"There appears to have been no cause for alarm until the cargo was out of the vessel, when it was noticed that a very offensive smell proceeded from her hold. After she dropped down to the pier at Almond Street wharf, on Wednesday morning, the 20th, the stench became intolerable, especially whenever the pumps agitated the bilge-water, contained under the limber planks or flooring of the hold."

On the 19th of July, the day before the Mandarin left her position at Lombard Street wharf, the first suspicious case occurred in the neighbourhood, and from that period the disease extended. Dr. Jewell has carefully investigated the cases, and given a summary of them in the order of their occurrence.

"Before the arrival of the Mandarin, and up to the 19th of July, the day on which the first case of fever occurred, the vicinity of South Street and the wharf, as well as the entire city, enjoyed its usual degree of health. Certain it is, that no epidemic was prevalent. For the week ending July 9, the deaths in the city and liberties were 229, and only one death from fever of a bilious type. For the week ending July 16, there were 206 deaths, including one from

intermittent fever. For the week ending July 23, there were 218 deaths, of which four were from fever. Three of these were in children; one was recorded fever, one bilious, one congestive, and one remittent.

"As yet, no one with whom we have conversed has ventured to intimate a doubt as to the agency of some uncommon and virulent poison, diffused through the atmosphere, as the pestilential cause of the malignant or yellow fever, a few cases of which have made their appearance recently in the vicinity of South Street wharf.

"The essential character and origin of this poison may afford an opportunity for the speculative inquirer to indulge anew, either in an effort to demolish some favourite, though long established, yet not the less false theory of the origin of malaria, or to build upon the ruins of theories, once accredited as ingenious and popular, some more modern system of causation, which, as we advance in medical science, may be destined to meet the fate of those which have preceded it, however elaborately and industriously they may have been exemplified and sustained.

"But, while we leave the discussion of this subject to others, it will not, we conceive, be questioned, when all the facts are clearly and minutely examined into, that this poison, whatever may be the nature of its character, must in part be ascribed to a morbid effluvia generated under the limber planks in the hold of the barque *Mandarin*, from the putrescent state of her bilge-water.

"Upon the first glance at the *Mandarin*, and the history of her voyage previous to her arrival at Philadelphia, the advocates for a contagious germ for yellow fever, or, in other words, a principle emanating from the sick, and capable of being conveyed from one person to another, as the focus for the fever which has threatened our city, may imagine they have discovered another instance in support of their favourite theory. This, however, we are persuaded, can hardly be the case, although we are desirous that a careful review of the facts connected with this ill-fated vessel should speak for itself.

"The *Mandarin* left Cienfuegos on the 25th of June, with a healthy crew. No epidemic was prevailing there when she sailed, although the captain, on oath, admits that a 'few cases of smallpox and fever' did exist. He states that his crew lived on board the barque while in port, anchored off the town, were seldom on shore, and, as far as his knowledge extended, none of them had visited among the sick.

"The captain admits that the hold of his vessel had often been in a foul condition, as all vessels were that carried cargoes of sugar and molasses. Eight days out from Cienfuegos, July 3, one of the seamen sickened with fever, and died on the 7th. On the ninth day at sea, July 4, another took sick with fever, and died on the 9th, being the fifth day of his illness. This last man was thrown overboard after the vessel was within the capes of the Delaware."

"Upon the authority of a highly respectable shipwright, who, in his official capacity, very carefully examined the *Mandarin*," Dr. Jewell learned "that her pumps are so constructed as to render it impossible to remove all the water in her hold. Being a tight vessel, the bilge-water remaining in her will smell in a very few days after pumping her clean. His language is: 'If you draw those pumps every five minutes in the day, there must remain in her twelve inches of water. My opinion is, that the pumps do not go down low enough; they do not go down within twelve inches of the keel, whereas they ought to be at least eight inches lower.'

"We present this fact in evidence of the impure state of the hold of the *Mandarin*, six days after she was pumped clean at the Lazaretto.

"In addition, however, to the prevalence of the morbific atmosphere which we have clearly shown developed itself on board the *Mandarin*—but not until her cargo was discharged—and which so sensibly affected individuals on approaching her when she lay at Almond Street wharf, we must not for a moment conceal the existing causes in the immediate vicinity of South Street wharf, sufficient to justify the supposition of their agency, in the development of disease of a malignant type, when subjected to the high thermometrical influence which prevailed throughout the months of June and July. Not the least mischievous of these causes in the production of an unhealthy atmosphere,

was the outlet of the sewer into the dock at South Street ferry, belching forth continually putrid masses of animal and vegetable filth, accumulating around its mouth, and exposed at low water to the rays of the sun, exhaling streams of unwholesome and poisonous gases into the surrounding air. Besides this agent, there was a most foul wharf at the upper side of South Street; a filthy avenue, between Lombard and South Streets, without any properly-constructed surface drainage; numerous damp and confined cellars subject to an occasional overflow by the ebbing and flowing of the tide-water of the Delaware; and various minor causes that might properly be added to the above category, fruitful in the production of atmospherical changes injurious to health.

"In summing up, however, there is one prominent feature in the chain of our narrative that must not be passed by without notice, viz:—

"No yellow fever existed in our city until six days after the arrival of the Mandarin; that it broke out immediately abreast of the wharf where she first hauled to, and, although there were existing causes in the vicinity—on shore—for the production of disease, there were "plague spots" in other parts of our city, remote from South Street wharf, where, had the question been asked, we should have unhesitatingly located the first appearance of fever of a malignant type, independent of the suspected existence of a foreign focus of infection, competent to exercise its morbific influence on an atmosphere already tainted.

"In presenting the above, it is proper to say that we are influenced solely by a desire to arrive at the true cause for the origin of the yellow fever in our city. That we are no blind adherent to any favourite theory for the spontaneous or domestic origin of yellow fever, nor yet an uncompromising opponent of those who advocate the doctrine of a contagious principle, capable of being carried about from place to place, and under a train of favourable circumstances, productive of disease. An honest inquirer after truth, we would disguise no fact, that might tend in any way to elucidate a question so intricate, that for years it has been controverted by the ablest pens in our profession, and yet remains a mystery."

The whole number of cases of yellow fever registered from July 19 (when the first case occurred) to October 7, the date of the last case, was 170. Of these, 128 were fatal, making a mortality of 75 per cent.

"Of the 170 cases, 147 may be traced directly to the infected locality, or its immediate vicinity. Twenty-two are of doubtful or unknown origin; while in one instance, that of Matthias Pettigrew, the disease was contracted at the Lazaretto station, where he had been at work on board the ship Caledonia Brander, from New Orleans.¹

"One hundred and eighteen of all the cases reported were treated in private practice; twenty-four at the Pennsylvania Hospital, eighteen at the Blockley Hospital, seven at the Bush Hill or City Hospital, and three at St. Joseph's, on Green Hill.

"In no instance can it be shown that the disease has spread from those labouring under the fever. At the Pennsylvania Hospital, the yellow fever cases were intermixed in wards with numerous other patients, some ill, and others convalescing from disease, but not an individual, either among the patients, nurses, or visitors, contracted the fever. The like immunity was observed with the cases treated in the Blockley, St. Joseph's, and Bush Hill Hospitals. In private practice, although numerous cases were attended away from the infected portion of the city, we have yet to learn that the disease, in a single instance, was propagated from the sick to the well, although there was an unrestrained intercourse between the patients and their immediate friends.

"The only case that bears any resemblance whatever to the disease being communicated from patient to attendant, is that of Daniel Shanahan's wife. These people resided in North Front Street, near Callowhill, full a mile and a half north of South Street, but within a few rods of the Delaware front. No history could be obtained from Daniel as to where he contracted his disease, as he was in a dying condition when first seen. His business, however, was to put coal in cellars, in various parts of the city. He died on the 30th of September with

¹ This vessel had yellow fever on board when she arrived.

black vomit, after six days' illness. His wife, Mary Shanahan, who took care of him, sickened on the 28th, four days after her husband, and died in the City Hospital, on the 1st of October, with black vomit. The examination of her body, after death, left no doubt as to the genuine character of her disease. This woman declared that, so far from visiting the vicinity of South Street, she had not even crossed the threshold of her own door for several weeks, having a family of small children around her. The room she occupied, the third story front of an unfinished warehouse, was very filthy, but large, and by no means confined. The whole upper part of the building was rented out, in rooms, to different families of the low order of Irish; everything around presenting poverty, rags, and filth. This case of Mary Shanahan is one of those that the advocates for contagion would readily seize upon to sustain their peculiar views; but a careful review of all the circumstances that enter into its history, will set at rest the least suspicion that the wife contracted the disease from her husband.

"On the 22d of the same month (September), Michael Palmer, residing in Willow Street, two doors west of Front Street, and about one square north of Shanahan's residence, was taken ill with yellow fever. This man unhesitatingly declared that he was not acquainted with the lower part of the city; did not know that he had ever been in the vicinity of South Street wharf; was a shoemaker; worked in Front Street above Noble, and was not in the habit of going anywhere else, but from his shop to his residence in Willow Street. He had no knowledge of Shanahan's family. The question will be asked, where did Palmer contract his fever? Not from contagion, nor from a visit to the infected district, but from a residence in the immediate vicinity of Willow Street wharf, where the culvert along Pegg's Run empties into the Delaware, which outlet, at low tide, is fully exposed, and where at all times there is a large deposit of putrefying vegetable and animal remains. This state of things, with the intense heat of the weather, aided, in all probability, by an epidemic influence stealthily creeping along the wharves from the infected locality, was doubtless the cause, not only of Palmer's sickness, but also Shanahan's, as he must have passed this culvert daily, on his way to the coal-yards at Noble and Green Street wharves, where he was in the habit of obtaining employment. His wife, no doubt, contracted her disease from the same source of infection, as her statement was not confirmed that she had not been out for weeks; and if it had been, she was sufficiently near to have inhaled the poisoned atmosphere without absenting herself from home. Had it been from a contagious principle emanating from her husband's person, the general period allotted for the process of incubation had not expired before she was taken sick, on the fourth day after her husband. And under the circumstances in which the house and the several families occupying it, in all their filth, were situated, we should certainly have looked for other cases of fever, there being free and direct intercourse between all the inmates. Not another case, however, happened within these premises. Hence, we conclude that the origin of Mary Shanahan's fever is as fully established as that of her husband and Palmer's; that contagion played no part in the drama; but that a miasmatic constitution of the atmosphere existed in that vicinity, from the inhalation of which these individuals contracted the fever, resulting in the death of two of them.

"Ninety of all the cases were accompanied with black vomit; equal to 53 per cent. Of these, all died except four, viz. John Reehil, aged 20; Ellen Parr, aged 20; Mrs. Lindsay, aged 28; and James Sweeny, aged 12. The genuineness of the discharge in Ellen Parr's case has been doubted, as stated in a former communication. As black vomit has generally been considered to be a fatal symptom in yellow fever, we should always have some hesitation in relying upon the evidence of recovery after it has occurred, however high the authority from which the statement comes, unless the matter has been carefully submitted to the field of the microscope, and blood-corpuscles found therein.

"The sexes suffered nearly alike from the effects of the fever; the preponderance, however, being on the side of the males. Ninety-three of the cases on record were males, and seventy-seven were females.

"A large proportion of those attacked were foreigners, viz. 102. Of these, 62

were born in Ireland, 19 in Germany, 18 in England, 1 in Scotland, 1 in France, and 1 in Spain. The remainder (68) were natives of the United States.

"The coloured population appear to have been specially exempt from the disease. We have not on record a single case, nor could we learn of any black person having had the fever. This supposed immunity of the coloured race from attacks of yellow fever has been elsewhere observed; but in the fever of 1793, in this city, Dr. Rush says, they took the disease in common with the white people."¹—*Summary of Transactions of the Philadelphia College of Physicians*, N. S. Vol. II., Nos. 2 and 3.

Pulsating Tumour of the Occiput.—Dr. JOHN NEILL, one of the Surgeons of the Pennsylvania Hospital relates (*Med. Examiner*, Feb. 1854) a very interesting and unusual case of this kind.

The subject of it was a man 70 years of age, admitted into the Pennsylvania Hospital April 28, 1853. According to his own statement, he had had, for many years, a small, hard tumour upon the right side of the back part of his head, which never pulsated or gave him any pain till about five months previous to his admission, when, accidentally pressing the tumour against the pillow whilst lying in bed, he heard something crack in it, and that it had constantly enlarged since this occurrence.

At the time of his admission, there existed a large, regularly-rounded tumour upon the right posterior part of the head, commencing about three-quarters of an inch behind the right ear, and extending to the left of the median line posteriorly. It reached also from the margin of the hairy scalp nearly to the top of the head. It was eight inches from side to side, in either direction, over the most prominent part, and sixteen inches in circumference around the base.

The skin over the tumour was stretched and reddened, but not hot nor tender, and could be moved freely upon the parts beneath. There was no pain or uneasiness in the tumour, except a sense of tension.

It had a *pulsation* distinctly perceptible both to the eye and touch, accompanied by a marked *aneurismal bruit*. The pulsation was not a simple rising and falling of the tumour, but an expansion in all directions.

The right occipital artery could be felt beating strongly and with a distinct thrill. Pressure upon it sensibly diminished the pulsation of the tumour, and pressure upon both occipitals almost entirely destroyed pulsation.

There was no swelling of the glands in the vicinity, and no other tumour about the body. The pulse was regular—the radials were not ossified—and the sounds of the heart were natural. By the 30th, the tumour had rapidly increased in size, the skin over it became reddened and tense, and threatened soon to give way, and it was decided to tie both occipitals. Each vessel was secured on the cardiac side of the origin of the *princeps cervicalis*. After the operation, no pulsation could be perceived, nor could the bruit be heard. The tumour became somewhat smaller and much less tense. Its colour also was much less deep.

In the evening, however, the patient had some fever, and the pulsation returned strongly. On the following day, May 1, the pulsation was nearly as strong as ever, but the bruit was scarcely audible. The tumour was hot, and the skin over it red. Cold was applied by lint dipped in ice-water.

May 3. The tumour was smaller, the pulsation decidedly less; no bruit; the skin less red; no fever. The wound looked well, and had partially healed. The cold was continued, and compression maintained by means of a bandage.

5th. Pulsation was still distinct; the bruit just audible. A small abscess had formed in the left wound beneath the skin, which had united. The evacuation of the pus was followed by a chill and subsequent fever.

7th. Erysipelatous inflammation attacked the tumour, and spread over the whole scalp. The inflammation gradually extended over the face and a portion of the neck, and was attended with great swelling and severe general prostration.

Upon the 14th, the right ligature came away.

¹ Rush's Works, vol. iii. p. 151.

16th. The erysipelas had disappeared, leaving the integuments of the tumour oedematous and much reddened. The pulsation remained about the same, but still somewhat less than before the operation. The tumour was covered with collodion daily, with reference to its contracting effect and the support it would afford to the skin.

21st. The remaining ligature came away. There is little or no change in the size of the tumour or its pulsation. The patient's general health is as good as before the operation.

The collodion was constantly applied, and a roller so placed around the base of the tumour as to constrict it and press upon the small vessels supplying it. Small branches of the temporal arteries could be felt entering the tumour, and the posterior auriculars were enlarged. Pressure upon the temporals had no appreciable effect upon the pulsation.

He remained in the house until July 17, when he applied for his discharge, thinking himself sufficiently relieved to attend to some little business. When he left the hospital, the tumour was about the same size as on his admission, but the pulsation and bruit were much less. There was no pain or tension in it, and it showed no disposition to extend itself or to ulcerate. The skin over it was loose, and could readily be moved upon the parts beneath.

In September, he died at the almshouse, and, after the *post mortem* had been made, Dr. N. had an opportunity of examining a section of the head containing the tumour. It had encroached upon the cavity of the cranium, through an opening, with rough and jagged edges, of about three inches in diameter.

The dura mater was pushed into the cranium, and was closely connected by its external surface with the tumour. The internal surface of the dura mater seemed perfectly healthy.

Upon cutting into the tumour, it presented the appearance of encephaloid cancer. The larger part of the section was of that white kind which so much resembles medullary matter, and the remainder had a pinkish-gray tint, indicative of greater vascularity. The interior of the tumour was intersected with numerous dense bands, and in the intervals were several small cysts containing fluid.

About one inch and a half from the tumour, there had been disease and absorption of a portion of the parietal bone. The opening in the bone was one inch in diameter, and seemed to be so regularly circular on one side that it appeared to have been made with a trephine. The pericranium and the dura mater did not seem to be diseased, but between the two there was a reddish material, so soft that it was almost semifluid.

A microscopic examination showed the disease to be cancerous.

Dr. Neill, in his remarks on this case, calls attention to the great want of correspondence in the physical characters of the disease and those revealed by the *post-mortem* examination.

"Here was a pulsating tumour, with perfect aneurismal pulsation and bruit; pressure on the occipitals interrupted the pulsation, and the ligature subsequently destroyed the pulsation and bruit completely. The impression that it was an aneurism was irresistible, and I thought that it was a diffused aneurism. Subsequently, however, to the operation, the pulsation returned, and doubts began to arise as to its aneurismal nature; still, there was no reasonable grounds for such suspicions. Under such circumstances, the attention of any one would naturally be directed to the possibility of its being a disease of the brain or dura mater, which had worn an opening in the skull, and that the pulsation was dependent upon that of the brain; but, if such had been the case, the pulsation would not have ceased upon the application of a ligature to the artery. And, moreover, such extensive disease of the brain or its membranes could hardly have existed so long without producing some functional disturbance.

"Then, again, the subject of pulsating tumours in bone, and osteo-aneurism, would be brought to mind, but yet the position and characters of this tumour would not allow it to be included under this class of diseases.

"The probability of its being cancer often occurred to me, but of course there could be no suspicion of its being a hard cancer or an osteo-sarcoma; and when,

by feeling the tumour, the idea of a soft or medullary cancer was suggested, its pulsation, and the fact that that pulsation was once controlled by pressure upon an artery, at once counteracted the conclusion.

"In fact, the case is a rare one. There is no record that I have yet seen of a pulsating encephaloid tumour of the occiput."

Excision of the Knee-joint for Ankylosis.—Dr. GURDON BUCK exhibited to the New York Academy of Medicine (Feb. 1, 1854) a patient whose knee-joint he had excised for ankylosis, with deformity. A plaster cast of the limb was shown, which represented its condition before the operation. The leg was flexed at an angle of about 135° upon the thigh, and luxated outward so that the tibia was supported on the outer condyle alone, the inner condyle being very prominent inward, with the skin tightly stretched over it. The leg was also rotated outward on its axis, and abducted upon the thigh. A slight degree of motion was still perceptible in the joint.

This condition of things was the result of a gunshot wound, penetrating the joint above the patellæ. The accident had happened about the 20th of April preceding. Severe inflammation and profuse suppuration followed, and openings formed at different points above and below the knee. The limb, having been placed on its outer side, supported by a pillow, had gradually assumed the deformed position represented by the cast. On the 9th day of August, one month after admission into the New York Hospital, the following operation was performed, the patient being under the influence of ether. A transverse incision was made from one condyle to the other, across the lower margin of the patella. A longitudinal incision intersected the middle of this, and extended four inches above and below it. After the flaps had been dissected up, the joint was opened into by an incision across the ligamentum patellæ, at the inferior edge of this bone, and also across the lateral ligaments. The adhesions of the articular surfaces were broken up by forced flexion, very gradually applied. A slice was then removed, with the common amputating saw, from the inferior surface of the condyles of the femur, including the pulley-like surface intervening between. Special care was taken to make this section on a plane parallel with the surfaces of support upon which the condyles rest when the body is erect. The articular surface of the tibia was next removed on a level with the upper extremity of the fibula, after the insertions of the capsular ligament had been dissected up from the posterior half of the circumference of the head of the bone. These broad fresh-cut bony surfaces, which were very vascular and healthy, admitted of accurate coaptation without stretching the tendons and other parts in the ham. To secure them in close contact, and prevent displacement, a flexible iron wire was passed through both bones on either side, and the two ends twisted and left out between the flaps of the skin. The patella, being disorganized and softened, was removed, except the superior margin, which affords insertion to the quadriceps muscle. The flaps of integument were then trimmed and brought together with sutures and adhesive straps, and the limb placed in a fracture-box. The constitutional fever following the operation was moderate, and disappeared within a fortnight. The suppuration never exceeded half an ounce in twenty-four hours. At the expiration of five and a half weeks, the wires, having become loose in their tracks, were removed. No exfoliation of bone was produced by their presence. At the end of nine weeks, the wound had entirely healed, and patient could raise the limb bodily from the bed. A slight degree of motion between the bones is perceptible in the direction of flexion and extension, but none laterally. At the expiration of about three months, patient was allowed to leave his bed and use crutches. He has been steadily improving up to the present time, and now walks with a cane only. There is no longer any mobility between the bones. The difference in length between the two limbs is one inch and a half, which permits the foot to clear the surface of the ground without the body being thrown to the opposite side, as is the case where the length of the ankylosed limb remains the same as that of its fellow.—*New York Medical Times*, March, 1854.

Radical Cure of Hydrocele.—Prof. WILLARD PARKER, of New York, recommends (*New York Journal of Medicine*, Jan. 1854), for the radical cure of hydrocele, the local application of the solid nitrate of silver; and he states that this possesses the following advantages over other operations: 1. The ease and safety with which it may be performed. 2. The less liability to severe inflammation. 3. The certainty of success. The following case illustrates the mode of operating, and the results of treatment:—

"Mr. J., aged about 60, an Irishman, waiter by occupation, unmarried, had always enjoyed good health until April last, when he discovered an enlargement of the left scrotum. It had never previously been the seat of any difficulty. The tumour increased so rapidly that, within three weeks, it had become a great annoyance, and prevented him, simply from its size, from continuing at his business. At this time I first saw him, and such had been the rapidity of the growth of the tumour, that it had been mistaken for hernia, and he was wearing a truss. On examination, however, its true character, that of hydrocele, was made out without difficulty; a trocar and canula were accordingly introduced, and a large quantity of water withdrawn, and the patient dismissed. In about three weeks, he again applied for relief, and I proceeded to operate for his radical cure in the following manner: After drawing off the fluid contents of the tumour in the ordinary way, I introduced through the canula a common probe, the end of which was coated, for half an inch or more, with nitrate of silver. This extremity, thus charged with caustic, was carried lightly over the serous surface of the tunica vaginalis, in various directions, and then removed. The patient complained of some pain during this part of the operation. He was directed to keep quiet, for the pain and swelling consequent on the application of the caustic, and apply cooling lotions, should the inflammation be at all severe. He returned home; but, as he suffered but little pain, and the swelling was slight, and as his services could not well be spared, he continued about his business without any interruption. The pain lasted three or four days, when it ceased altogether, leaving the scrotum of its natural size. In this condition, it has since remained, with no symptoms of a return of the hydrocele, the cure having been complete."

Common Salt as a Remedy for Intermittent Fever.—In the No. of this Journal for July, 1852, Dr. W. P. Lattimore called attention to the employment of common salt as a cure for intermittent fever, a practice then recently introduced by MM. Montdezert and Piorry.

Dr. J. C. HUTCHINSON was induced by these representations to experiment with the article, and in the *New York Journal of Medicine* (March, 1854) he relates twenty-two cases of intermittent fever treated by it.

The dose in which it was given varied from eight to twelve drachms during the apyrexia. At first, eight drachms were given, but the amount was subsequently increased to nine, ten, and even twelve drachms in one instance, with obvious benefit. Children required somewhat larger proportional doses than adults.

Mucilage of elm was selected as the vehicle, on account of its convenience, and because it sufficiently disguised the remedy, which was deemed a matter of importance; for it would have lost much of its efficacy, or have been repudiated altogether, had the patients known they were taking simply common salt; as it is well known to physicians that the influence of the mind upon this disease is very considerable. The following was the formula used: R. Chloridi sodii $\frac{3}{4}$ ij; ulmi pulv. 3ij; aq. bullientis f $\frac{3}{4}$ vij. Infuse two hours and strain. This forms a saturated solution. Dose, a tablespoonful every two, three, or four hours, so that five or six doses may be taken during the apyrexia. It was not deemed necessary to precede its employment by evacuants, because the patients had recently used such remedies during their former attacks; and, moreover, Dr. H. preferred to use the salt alone, because its real value could thus be better determined. When it is necessary to precede the use of the salt as an antiperiodic, by emetics or cathartics, perhaps there is nothing better for the purpose, in ordinary cases, than the same remedy administered in emetic doses, which will usually produce also moderate catharsis.

In most of the cases the remedy was well tolerated by the stomach, nausea or vomiting having occurred in but four. Four cases also had moderate alvine evacuations, unattended with pain. There was considerable thirst in every case; no other unpleasant effects. When given in the above manner (dissolving it in as small a quantity of water as is possible), it is less likely to disturb the stomach than the same or even a less amount would in a larger proportion of the solvent. The taste was objected to by some, whilst others disliked it much less than quinia.

The following were Dr. Hutchinson's conclusions:—

"I. Although inferior to cinchonia and its preparations, it yet forms a *very good substitute* for them in intermittent fever, having failed, as we have elsewhere seen, to produce a speedy suspension of the paroxysms in 31.8 per cent. of the cases only; in a majority of cases, therefore, it may be substituted for quinia.

"II. It may be used instead of, and, indeed, *preferably* to quinia: First. In cases not unfrequently met with, where the latter remedy is forbidden by the very unpleasant nervous and cerebral symptoms it produces (delirium, tinnitus aurium, cephalalgia, faintness, &c.), an example of which I have recently seen in the New York Hospital, when sulph. copper was substituted. Secondly. Where quinia, from frequent repetition, has lost its effect in ague. Thirdly. It is commended on the *score of economy*, which is a consideration of importance to the poor especially, who are now in a measure debarred from the use of quinia by its high price. And, fourthly. It is always at hand, whilst quinia sometimes cannot be obtained.

"III. It has been found to be *more energetic* in curing ague than any of the vegetable or mineral tonics commonly used for that purpose, excepting bark; and should, therefore, be preferred to arsenic, which has been ranked by M. Andral, Prof. Wood, and indeed most other authorities, next in value to quinia. And, moreover, I think arsenic should never be used until after quinia and *common salt* have failed to do good, on account of its unpleasant and sometimes disastrous consequences to the general system and stomach, and the increased facilities it affords for using the remedy as a toxicological agent."

Death from Chloroform.—Dr. DE WOLF, of Chester, Mass., records (*Buffalo Medical Journal*, Dec. 1853) the following case:—

"I was called into an adjoining town in consultation with my friends, Drs. Freeland and Smith. The patient was a young lady of about twenty-five years, of full and vigorous health, and in her second accouchement. I found her dying, but conscious, and obtained from her physicians the following history:—

"Some thirty hours before, Dr. Freeland was called in, and found her in the 'preparatory' stages of active labour.

"For several hours, there was very little development of the case, and the patient became importunate for chloroform, having inhaled it during her first parturition. The doctor explained her present condition, and advised her that now was an improper time for the use of it, and, after waiting a few hours, bled her from fifteen to twenty ounces. At this period, the case seemed to have made but little progress, and, after an anodyne of some forty drops of tr. opii, she obtained some rest.

"When she awoke, she complained of pain in the abdomen and loins, and again importuned for chloroform. Strong and full pulse, not exceeding 100; tongue moist and clean; uterine action rather tardy; os uteri yielding; head advanced; pelvis roomy, and no unpleasant symptom. Under these circumstances, the doctor promised her speedy relief, and persuaded her to take a decoction of the ergot. Very soon she insisted on having the chloroform, and sent a messenger for Dr. Smith. The doctor came, and brought, as requested, a small bottle of chloroform, containing, as he believes, not more than $\frac{3}{ij}$. He put it upon a table in sight of the patient, and, while listening to Dr. Freeland's narrative of facts in the case, the patient instructed a female friend to give her the bottle, and refused to give it back.

"She inhaled from time to time, and when told by both physicians that, by persisting in the use of it, she would peril the successful termination of her

labour, and possibly her life, her reply was: 'My pains are quite comfortable.' And in this condition remained about twelve hours.

"Upon a careful examination, no material change in arterial action or nervous power was discovered, but very clearly, as they thought, a promising change in the rigidity of organs, and, the chloroform being gone, they felt confident there would soon be increased uterine action, and a triumphant finishing up of the case. Alas! they were soon to be released, and their patient too. Now it was that absence of all pain, a cold sweat, cold extremities, oppressed and whizzing respiration, receding pulse, and 'vacant glare,' pointed to a sudden and fatal termination. All their friction, hot appliances, and active stimulants, were of no avail. I looked upon the dying woman with feelings of deep sorrow, for in her history I could see nothing, aside from the chloroform, to bring before me such an end, and, hence, I came to the following conclusions:—

"1st. The time of her suffering would not have done it.

"2d. The amount of her suffering would not have done it.

"3d. There had been no rash quackish meddling.

"4th. There was no rupture of vagina or uterus.

"5th. There was no evidence of cerebral congestion from plethora or other cause.

"6th. Patient perfectly conscious, but insensible to pain; and

"Finally. Her death, as it seemed to me, could be chargeable to nothing but the abolition of vital force, from frequent repetition of partial anaesthesia.

"I have said she was perfectly conscious, and here is the evidence: She knew they had sent for me, and, on my arrival, I met the physicians in an adjoining room, and, while listening to the facts above written, there came in a lady and said the patient desired to see me. In surprise, I asked, *how is this?* The answer was, *she is positively dying, but conscious.* As I came into her presence, she anxiously inquired, 'O, doctor! can you take my child and save me?' I very soon assured her I could take the child, and did so. To take the child, was then quite easy—but to *save her*, was impossible. The child, a fine boy, was dead, and in ten minutes the anxious mother was a corpse."

Onanism in a Boy Seven Years old.—The following remarkable case is recorded (*N. W. Med. and Surg. Journ.* Feb. 1854) by Dr. A. GARWOOD:—

The patient was a boy I took out of the county poor-house to live with me, and had him bound by the superintendents of the county poor till he was 21 years of age.

He was seven years old, very fair complexion, light hair, black eyes, a slender delicate frame, and apparently an innocent, sprightly, and interesting child.

I did not suspect him of being a masturbate till I caught him in the act of self-pollution. I then learned from him that he was taught the loathsome practice at school, when but four years of age, and that the habit had become confirmed, and had been growing upon him ever since. I punished him at the time, and gave him a lecture on the consequences of the habit if continued; told him that it would injure his health and mind, that it would make him a weakly, foolish, good-for-nothing boy, that other children would not be allowed to play with him, and that I would take him back to the poor-house. He seemed very penitent, and promised reformation.

Never having had much experience in such cases, I thought the means I had used might possibly cause him to discontinue the filthy practice. But I soon learned that he did not quit it for a single day or night. He commenced living with me in the summer, and the habit grew upon him during the fall and winter rapidly, as was evident from the stains on his linen, from his general appearance, and from his own confession. When he found that he could not conceal the fact from me any longer, he became very bold about it, and seemed to lose all shame and delicacy of feeling on the subject. He stated that he never missed a night but that he indulged in it two or three times, that he engaged in it at the privy, that when he went to school, instead of playing with the other boys, he would sneak off by himself to practice it, and whenever he could get off by himself at any time or place, he was at it. He now de-

clared that he could not, and would not quit it, because "he was so used to it." I could not extort a promise from him to quit it, and he concluded that he would rather go back to the poor-house than to leave off the practice. The symptoms at this time were emaciation, inactivity, did not want to play, but would sit for hours listless and heedless of what was going on; his mind seemed more dull about everything except the gratification of his passion, for which, in seeking opportunities, he showed great acuteness and deception. He was very stiff in his limbs and back, so that it required quite an effort for him to exercise. There was a dark areola beneath the eyes. He could not look a person in the face. Had an excellent appetite, ate hearty, and craved the heartiest kind of food—not having missed a meal during the seven months he lived with me. When kept from it through the day by close watching, he became almost frantic; he would thrust his finger in his nostril, often making it bleed, would rub between the fingers of one hand with the forefingers of the other, and seemed to be perfectly on nettles, as though he could hardly endure it.

But the most prominent and disgusting symptom of all was incontinence of urine. He lost the control of the sphincter of the bladder to such an extent, that immediately after indulging he had to urinate several times, and often kept his clothes saturated half the time, in consequence of being unable to retain his urine till he could get to a proper place to evacuate. He has a great many times wet his pants at the table, and often had to leave it in the middle of a meal to run to the privy, and very often failed to get there in time.

Treatment.—After using every moral means in my power, I tried cold bathing, restricting his diet to plain unstimulating food, whipping him as hard as I dared to without injuring the child, blistered his penis till it was all over raw, and, as a *dernier resort*, tied his hands. All these efforts were entirely abortive; whilst his penis was raw he indulged as much as ever, and did not seem to regard the soreness. And when his hands were tied, he would bring on a seminal discharge by friction against his clothes, between his thighs, or between his abdomen and bedclothes, and at last he obtained such command over the abdominal, perineal, and gluteal muscles, in connection with the force of imagination, that he could produce a discharge sitting on a chair in my presence, when there was no motion perceptible. The desire of self-gratification appeared to be constantly in his mind, and I am convinced that he would forego any and everything else, even death itself, before he would quit the practice.

Excision of the entire Ulna.—Prof. CARNOCHEAN records (*American Medical Monthly*, March, 1854) a case of inflammation of the ulna, with its consequences—carious ulceration, necrosis and eburnation—in which he excised this bone, and with the preservation of the functions of the arm and hand.

Lobelia Inflata in Traumatic Tetanus.—F. KNOWLES, M. D., Prof. of Practice of Medicine in Iowa Medical College, has employed tincture of lobelia with advantage in three cases of traumatic tetanus. The tincture was given in drachm doses about every ten minutes, until a mitigation of the symptoms became apparent, and then a decoction of capsicum was administered to excite the stomach to emesis. In all these cases the violence of the symptoms subsided after free emesis. The remedy was then continued in small doses, and in a few hours all spasms ceased.—*Iowa Medical Journal*, Feb. 1854.

Felt Splints.—These splints were formerly manufactured somewhere in New England, and were on sale at many of the surgeon's instrument makers. We were in the habit of using them, and with satisfaction, but latterly have not been able to procure them. Prof. FRANK H. HAMILTON remarks, we think justly, that they are, in some respects, superior to gutta percha, and he gives (*Buffalo Medical Journal*, Dec. 1853) the following recipe for making them:—

"Dissolve three pounds of gum shellac in two quarts of alcohol. It should be dissolved in a tin vessel, furnished with a tight cover to prevent evaporation. Spread a piece of old or new woollen cloth on a board, and, with a clean brush,

saturate both sides of the cloth with the solution. Hang it up until it is thoroughly dried. Lay it again upon the board, and apply a second coat of the solution to one side only of the cloth. Dry again, and apply a third coat to the same side. There will now be three successive layers upon one side, and one on the opposite. While the last coat is yet fresh, fold the cloth so that the side having three coats shall be applied to itself. Now, with a hot flat-iron, smooth and press the surfaces together. When it is cold, a slight rubbing with sand-paper makes it fit for use.

"It becomes a firm, almost unyielding board, but exposure to a moderate heat will make it pliant, so that it can easily and accurately be adapted to any surface."

Aphonia cured by Electro-Magnetism.—Dr. F. K. BAILEY relates (*Peninsular Journal of Medicine*, Dec. 1853) a case of aphonia in a female seventy-nine years of age, of four years' standing, completely cured by electro-magnetism.

OBITUARY RECORD.—Died in New York, on the 7th of December last, aged 62 years, after a painful illness of many months, THOMAS G. MOWER, one of the Senior Surgeons of the United States Army.

At the suggestion of an esteemed correspondent, we copy from the *New York Daily Times*, of the 11th ultimo, the following just tribute to his memory. Dr. Mower was for many years the chief medical purveyor of the army, and the presiding officer of its Boards of Medical Examiners. His loss to the service, if not irreparable, will be for a long time greatly felt. As an officer and a gentleman he won for himself the respect and esteem of the whole army, and the affectionate regard of every member of the medical staff:—

"The subject of this notice was born at Worcester, Massachusetts, February 19, 1790, graduated at Harvard University in 1810, and, having made choice of the medical profession, entered the office of the late Dr. Thomas Babbit, of Brookfield, Massachusetts, as a student; and, having finished his course of studies, passed an examination, and was licensed to practice his profession. The degree of M. D. was subsequently conferred upon him by the College of Physicians and Surgeons of New York. About the time he received a license to practice, war was declared by the United States against Great Britain, and the young medical student, being of an ardent temperament, and strongly imbued with feelings of patriotism and the love of country, applied for a commission in the medical department of the army. On the 2d of December, 1812, the gloomiest period of that war, he received the appointment of surgeon's mate of the Ninth Regiment of Infantry, of which the late Dr. Joseph Lovell, afterwards surgeon-general of the army, was the surgeon, and immediately after repaired to its head-quarters, then at Burlington, Vermont, and remained with it, serving with distinguished zeal and ability until the close of the war in 1815; having been promoted to the rank of surgeon in 1814. He was present with his regiment, which formed a part of that gallant band of heroes known as 'Scott's Brigade,' whose chivalric deeds and gallant daring will be remembered with pride and gratitude by every true American heart so long as a single shred of the stripes and stars is left to float upon the breeze, and participated in the capture of Fort George, and the battle of Christler's Fields, in 1813, and in the more brilliant and sanguinary affairs of Lundy's Lane and Chippewa, in 1814; being always at his post, and, though belonging to that class of officers known as non-combatants, never shrinking from the place of danger, which was always considered by him the post of honour. At the close of the war, in 1815, he was one of the few surgeons retained in service on the peace establishment; and, in 1818, was found serving with the Sixth Regiment of Infantry, at Plattsburg, New York, then under the command of the late General Henry Atkinson. This regiment was ordered from Plattsburg, in 1818, to establish a new post at Council Bluffs, then an extreme outpost on the western frontier; and it was then that he probably experienced the severest trials to which he was subject during the whole of his military career, as the command, the first winter after its arrival there, became seriously affected by the scurvy, which carried off many men, and left many more in an enfeebled state

of health, from which they never recovered. To see men daily perishing, and others hopelessly ruined in their constitutions, for the want of a few of the simplest remedies, and those remedies not to be had, places the medical officer in charge of a military hospital in the most trying situation known to the profession in the army. Of the officers composing this command—about thirty in number—it is believed there are but three now living. Having served at several military posts on the extreme western frontier, from 1818 until 1822, he was ordered to New York, where he remained on duty as medical purveyor of the army until the time of his death, making occasional tours of inspection, and performing other important detached duties during this period. In the discharge of the responsible and important duties of medical purveyor, no man could have been more skilful, faithful, or efficient; and it will be found no easy matter to supply his place. He spared no pains in procuring the best medical and hospital supplies of every kind, avoiding all favouritism, and never allowing himself to be overreached or imposed upon by those who make it their study to defraud the government. But it was as presiding officer of boards of medical officers of the army, convened from time to time, for the examination of candidates for admission into the army, and those already in the army eligible to promotion, a duty upon which he was always placed, when it was practicable, that he most excelled, and that his services were most useful and beneficial to his department and service. The young and meritorious candidate for examination always found in him a friend who was ready with words of encouragement and the kindest manner to help him through the trying ordeal, while the forward and ignorant pretender found no favour with him, and was never able to impose upon his sound and discriminating judgment. It may truly be said that by his example, admonition, and advice, always cheerfully and in the kindest manner imparted to the young and inexperienced members of his department, it owes no small part of its present high standing and efficiency, and it will be many years, it is hoped, before that influence ceases to exist.

"In all the relations of life he was most exemplary and unexceptionable; as a husband, devoted and affectionate; as a parent, kind, indulgent, and most solicitous for the honour and welfare of his children; as a friend, ardent, disinterested, and unchangeable; as a man, upright, punctilious, exact in all his dealings, charitable, and actively benevolent; as a gentleman, affable, polite, courteous, and deferring to his equals, and even considerate of the feelings and interests of those below him in position; as a soldier, jealous of the honour of his profession, firm, decided, and brave, knowing no fear but the fear of a mean action, quick to perceive, and prompt to execute; as a physician and surgeon, mature in judgment, sound in theory, skilful in practice, humane, sympathetic, and self-sacrificing in his efforts to relieve or alleviate the sufferings of his patients; as a Christian, sincere without ostentation, believing in religion as a principle rather to be possessed than spoken of, and practising, rather than professing the Golden Rule. That he has gone to the enjoyment of that reward promised to the just made perfect, no one can doubt who knew his manly, generous nature and many virtues."

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.

THE Annual Meeting of the Society for 1854, will be held in the Borough of PORTSVILLE, Schuylkill County, commencing on WEDNESDAY, MAY 31, at 11 o'clock A. M. Secretaries of County Societies are requested to send certified copies of the credentials of their delegates to either of the undersigned before that date.

HENRY-S. PATTERSON, M.D.,
No. 92 Arch Street, Philadelphia.

ISAAC R. WALKER, M.D.,
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GRADUATES OF JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA,

MARCH, 1854.

At a Public Commencement, held on the 11th of March, 1854, the degree of DOCTOR OF MEDICINE was conferred on the following gentlemen by the Hon. EDWARD KING, LL. D., President of the Institution; after which a Charge to the Graduates was delivered by PROFESSOR ROBLEY DUNGLISON.

N.A.M.E.	S.T.A.T.E.	S.U.B.J.E.C.T. O.F T.H.E.S.I.S.
Abbott, Luther J.	Ohio.	Opium.
Allison, Thomas H.	Pennsylvania.	Dysentery.
Archer, Edward C.	Virginia.	Scarlatina.
Armstrong, Richard	Pennsylvania.	Clinical Practice.
Austin, William	South Carolina.	Dysentery.
Baptist, William H.	Alabama.	Typhoid Fever.
Barnes, Henry F.	Indiana.	Strangulated Inguinal Hernia.
Barret, R. Layton	Virginia.	Typhoid Fever.
Barr, Robert	Pennsylvania.	Phenomena of Inflammation.
Bartleson, Samuel P.	Pennsylvania.	Diabetes.
Bates, Thomas B.	South Carolina.	Conduct of a Physician.
Bates, Thomas J.	Virginia.	Remittent Fever.
Bell, James M.	Mississippi.	{ Inquiry into the Nature and Treatment of Poisoning by Reptiles.
Bellangee, J. Barton	New Jersey.	{ Enterico-mesenteric Fever.
Berryhill, Samuel G.	Pennsylvania.	{ Enterico-mesenteric Fever.
Bethune, Roderick A.	Alabama.	Mania à Potu.
Birdsong, Miles J.	Texas.	Menstruation.
Bishop, J. Leander	Nova Scotia.	{ Obligations of Medicine to Chemical Science.
Blake, Joseph C.	North Carolina.	Anatomy of the Human Liver.
Bloodgood, Delavan	New York.	Emansio Mensium.
Blount, Benjamin F.	Alabama.	Pneumonia.
Booton, John G.	Virginia.	Crural Phlebitis.
Bosbyshell, Charles B.	Illinois.	Typhoid Fever.
Bosset, William C.	Pennsylvania.	Acute Dysentery.
Boughan, John F.	Virginia.	Dyspepsia.
Bowes, George A.	Pennsylvania.	Cynanche Trachealis.
Bowers, James A.	Tennessee.	Epidemic Dysentery.
Brandt, Jeremiah	Pennsylvania.	Erysipelas.
Brown, Henry T.	Virginia.	Dysentery.
Buck, Erastus, Jr.	New York.	Cold, as a Morbific and Remedial Agent.
Burnell, Thomas H.	England.	Incised Wounds.
Burroughs, Alphonso J. L.	Georgia.	{ Remedial Influence of General Blood- letting in Fevers.
Bush, Robert H.	Virginia.	The Liver and its Functions.
Camden, Thomas B.	Virginia.	Acute Dysentery.
Carlton, Benjamin F.	Georgia.	Cholera Infantum.
Carter, James W.	Virginia.	{ The Atmosphere, and its Influence over the Animal Economy.
Cass, Edward	Ohio.	Spermatorrhœa.
Chancellor, Edward L.	Virginia.	Pathological Relations of the Blood.
Chase, Enos G.	New York.	Ovarian Tumors.
Chenault, Robert C.	Kentucky.	The Female Pelvis.
Chipman, James L.	Nova Scotia.	Remedies for Inflammation.
Clark, Samuel V.	Mississippi.	Pleurisy.
Clarke, Rowan	Pennsylvania.	Abortion.
Clements, G. Myrick	Georgia.	Delirium Tremens.
Cole, Edward C.	Virginia.	Bilious Remittent Fever.
Cope, Howson W.	North Carolina.	Incised Wounds.
Coleman, Asa	Indiana.	Intermittent Fever.
Collins, Richard T.	Kentucky.	Etiology of Typhoid Fever.
Compton, William M.	Mississippi.	{ Relative Value of Physical and Vital Signs as Means of Diagnosis in Diseases of the Lungs.
Conant, Oscar F.	Mississippi.	Dysentery.
Cooke, William T. B.	Virginia.	Gastro-hysterotomy.
Corley, James A.	South Carolina.	Miasmatic Fever.
Craig, John T.	South Carolina.	Enteric Fever.
Crawford, William H.	Alabama.	Intermittent Fever.
Crow, Calvin A.	Alabama.	Scarlatina.
Daingerfield, John Elliot	Virginia.	Dysentery.
Davis, Miranda G.	Mississippi.	Symptoms of Pneumonia.
Davidson, William J.	Virginia.	The Veins and their Diseases.
Dean, Richard C.	New Jersey.	The Classics of Anatomy.
Dillard, Thomas H. B.	Virginia.	Diphtheritis.
Drake, William W.	Tennessee.	Typhoid Fever.
Dugger, James M.	Georgia.	Intermittent Fever.
Dwinelle, James E.	New York.	Intermittent Fever.
Earl, John W.	North Carolina.	Dysentery.
Eberhart, George	Georgia.	Cinchona.

NAME.	STATE.	SUBJECT OF THESIS.
Eherle, Jacob K.	Pennsylvania.	Chronic Hepatitis.
Eldridge, Erwin J.	Maryland.	Embryulcia.
Eskridge, John M.	Georgia.	Structure and Functions of the Liver.
Evans, Robert M.	Mississippi.	Femoral Hernia.
Ewell, Joseph F.	Kentucky.	{ Physical Signs of the Diseases of the Heart and its Membranes.
Ewing, James P.	Tennessee.	Phrenitis.
Ewing, William D.	Virginia.	Dyspepsia.
Fennell, James W., Jr.	Alabama.	{ Fatal Termination of an old Burn by Cancerous Degeneration.
Fithian, Joseph, Jr.	Ohio.	Melituria.
Fontaine, Abraham W.	Virginia.	Nervous Influence on Organic Action.
Foster, David W.	Mississippi.	Influence of Climate.
Foster, George B.	Massachusetts.	{ Ulcers, their Varieties, Causes, and Treatment.
Fruit, Richard B.	Pennsylvania.	Pulsus Arteriosus.
Fulkerson, Putnam S.	Missouri.	Typhoid Fever.
Gay, W. Douglas	Kentucky.	{ Adaptation of the Physical System of Man to the External World.
Gilbert, Silas Terrell	New York.	{ Effects of Mercury when taken into the System, and the Propriety of using it as a Remedial Agent.
Gleeson, John K.	Louisiana.	Puerperal Fever.
Goodell, William	Turkey.	Physiological Correlation.
Goodrich, Robert A.	Virginia.	Typhoid Fever.
Gregory, Oscar	Virginia.	Acute Gastritis.
Griesemer, Calvin H.	Pennsylvania.	Auscultation and Percussion.
Grimes, Franklin T.	Kentucky.	Acute Pleurisy.
Haldeman, George W.	Pennsylvania.	Woman and her Peculiarities.
Hall, A. Douglas	Pennsylvania.	Metro-peritonitis.
Hall, John L.	South Carolina.	Congestive Fever.
Hall, William Hansell	Georgia.	Water.
Halsey, Luther F.	Pennsylvania.	Depletio Sanguinis.
Haring, John J.	New York.	{ Anatomy, Functions, Diseases, and Pathological Indications of the Tongue.
Harris, Sampson H.	Mississippi.	Wounds.
Harris, Thomas S.	Virginia.	Mercury, its Oxides and Chlorides.
Harrison, Marcellus T.	Missouri.	Functions of the Spleen.
Hart, Byron	Pennsylvania.	Empiricism.
Hart, William P.	Tennessee.	Propter Uterum Mulier est id quod est.
Harter, M. Lair (M. D.)	Pennsylvania.	Lobelia Inflata.
Haskell, Charles Henry	Massachusetts.	Typhoid Fever.
Head, Joseph (M. D.)	Illinois.	Emetics.
Henderson, Jophanus	Maine.	Laryngitis.
Hendrix, H. Walter	South Carolina.	Intermittent Fever.
Hezlep, William B.	Pennsylvania.	Pneumonia.
Hicks, Edwin S.	Virginia.	Croup.
Hill, Lafayette	Tennessee.	Fœtal Circulation.
Hilleary, John W. (M. D.)	Maryland.	Tracheotomy.
Hillyer, Eben	Georgia.	Hernia Inguinalis.
Hitch, John W.	South Carolina.	Dysentery.
Hoffinan, William F.	Pennsylvania.	Uterine Hemorrhage.
Hollifield, Horatio N.	Pennsylvania.	{ Chemical History and Therapeutical Applications of Mercury.
Holman, William P.	Mississippi.	Puerperal Peritonitis.
Holmes, Henry J.	Mississippi.	Cynanche Trachealis.
Homan, John C.	Virginia.	Gastric Digestion.
Hoover, Andrew S.	North Carolina.	Typhoid Fever.
Hopkins, Thomas B.	Texas.	Yellow Fever.
Houston, Armstrong P.	South Carolina.	Absorption.
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